Fourth Quarterly Roundup:
Construction Cost and Estimating Guide

Dec. 25, 1958

# ENGINEERING NEWS-RECORD

PRICE 50 CENTS

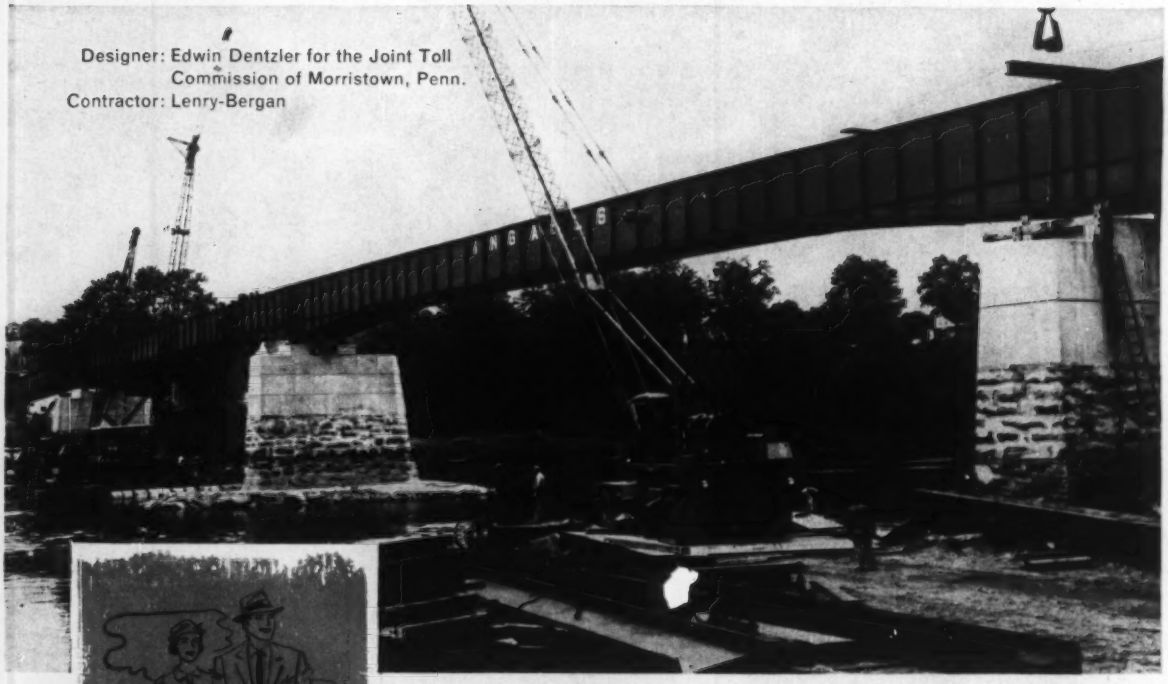
CONTENTS ON PAGE 17

## What Price Colored Buildings?

p.29

A McGRAW-HILL PUBLICATION

STEVENS RICE GS I
UNIVERSITY MICROFILMS II
313 W 1 ST
ANN ARBOR MICH



Designer: Edwin Dentzler for the Joint Toll Commission of Morristown, Penn.
Contractor: Lenry-Bergan

# Safety First... With INGALLS STEEL

Safe pedestrian travel was the basic reason for building this unusual footbridge over the Delaware River, between Portland, Pennsylvania and Columbia, New Jersey. Over 300 tons of steel went into the structure of the 768-foot bridge.

It was only natural to specify steel fabrication by Ingalls for strength, safety and durability. Economy in initial cost provides another important and characteristic advantage of this Ingalls fabricated structural steel job.

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The simple profitable way to give your plant TWO kinds of power from ONE dependable power source

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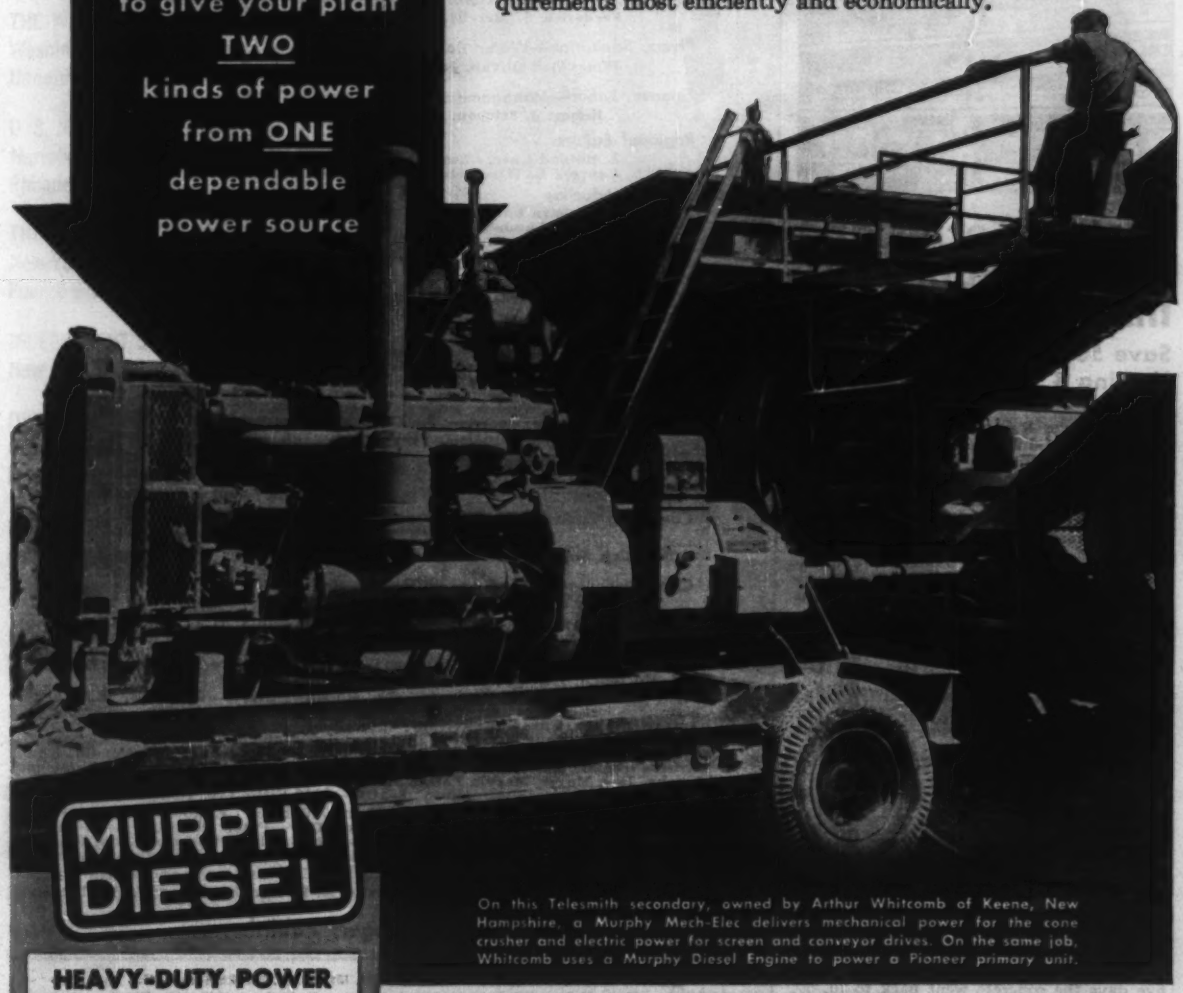

On this Telesmith secondary, owned by Arthur Whitcomb of Keene, New Hampshire, a Murphy Mech-Elec delivers mechanical power for the cone crusher and electric power for screen and conveyor drives. On the same job, Whitcomb uses a Murphy Diesel Engine to power a Pioneer primary unit.

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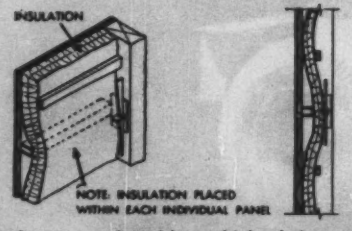
Pouring was started in January. Temperatures ranged from five to 25 degrees above zero. Concrete at time of pour was held in the 70 to 80-degree range. During one pour a




Cutaway section of form with insulation

tube was cast in the wall four feet from the top with a thermometer suspended in the bottom. After 24 hours, temperature at center of concrete rose to 105 degrees and after five days the concrete went back to 70.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons' products is available upon request.

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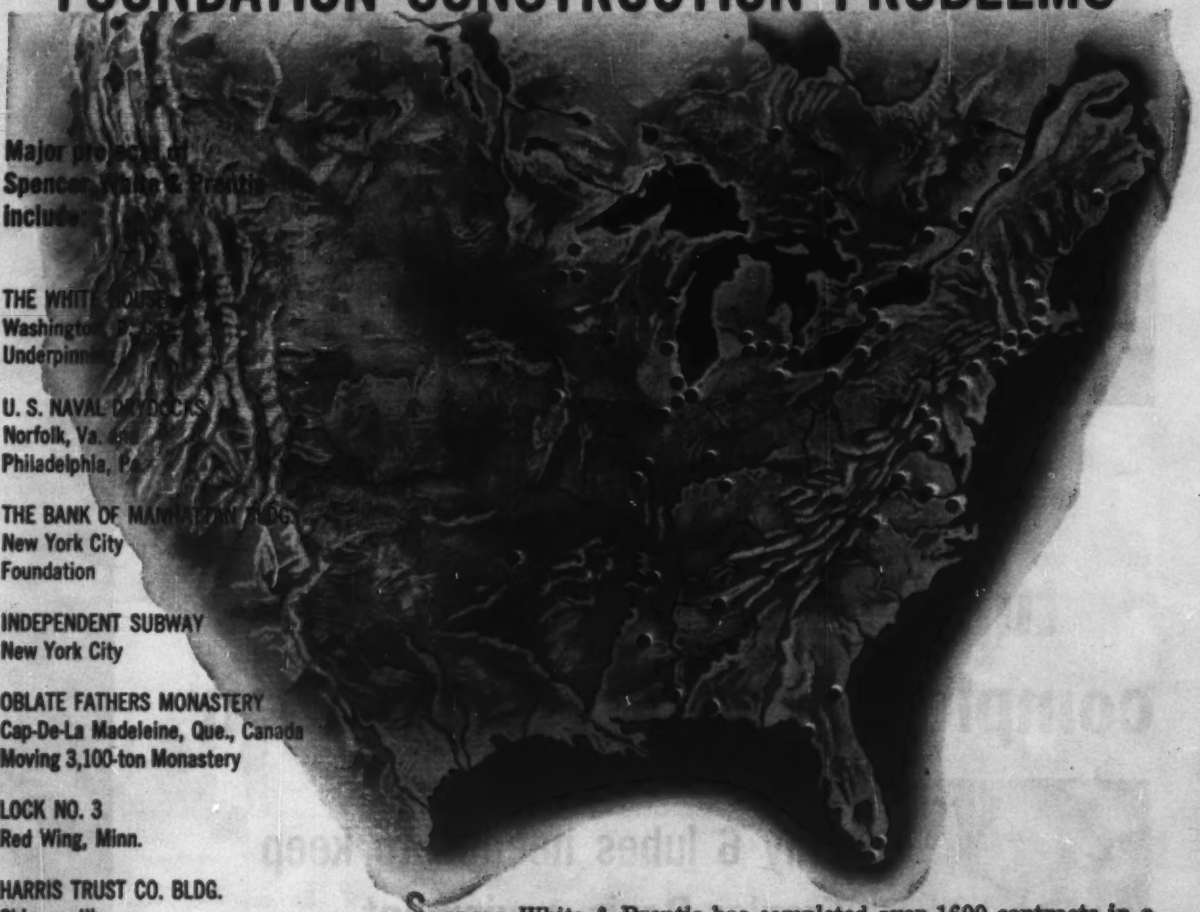

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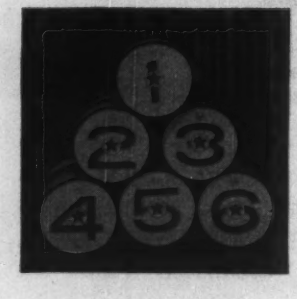
**SECOND LARGEST DAM IN THE U. S.,** at Glen Canyon, Ariz., will incorporate two of these 2,800 ft. diversion tunnels. Frazier-Davis equipment runs dependably, stays on the job, thanks to the Texaco Simplified Lubrication Plan.

# Glen Canyon tunnel borings nearing completion with Texaco Plan




## Only 6 lubes needed to keep Frazier-Davis equipment working dependably

This is Frazier-Davis Construction Company's job: to bore the east side diversion and service tunnels, with a combined length of 2½ miles, through the walls of Arizona's Glen Canyon. It's a vital project, part of the Bureau of Reclamation's $760 million development of 10,000 square miles of arid land. On a job as big as the Glen Canyon Dam, on-time completion of every phase is absolutely essential. And that puts a priority on dependable equipment performance.

**The Texaco Plan keeps equipment on the job**—at lowest cost—by handling all major lubricating problems with no more than six products. A combination of specialized and multi-purpose lubricants assures proper lubrication for each machine, with lower lubricant inventory and less chance for mistakes. For Frazier-Davis, the Texaco Simplified Lubrication Plan has proved to be one of the most economical and dependable ways to get top performance from every piece of equipment.

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**Texaco Regal Oil R&O**—prevents formation of rust and harmful deposits in compressor systems.

**Texaco Universal Gear Lubricant EP**—keeps differentials and transmissions running smoothly at low cost.

Bureau of Reclamation photos

**Texaco Marfak Multi-Purpose 2**—protects wheel bearings, chassis, water pumps against dust, moisture and wear.

**Texaco Track Roll Lubricant**—prolongs the life of crawler mechanisms.

**Texaco Rock Drill Lubricant**—guards against wear and rust whether drills are running or idle.

Ask a Texaco Lubrication Engineer to help you simplify your lubrication problems and reduce costs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

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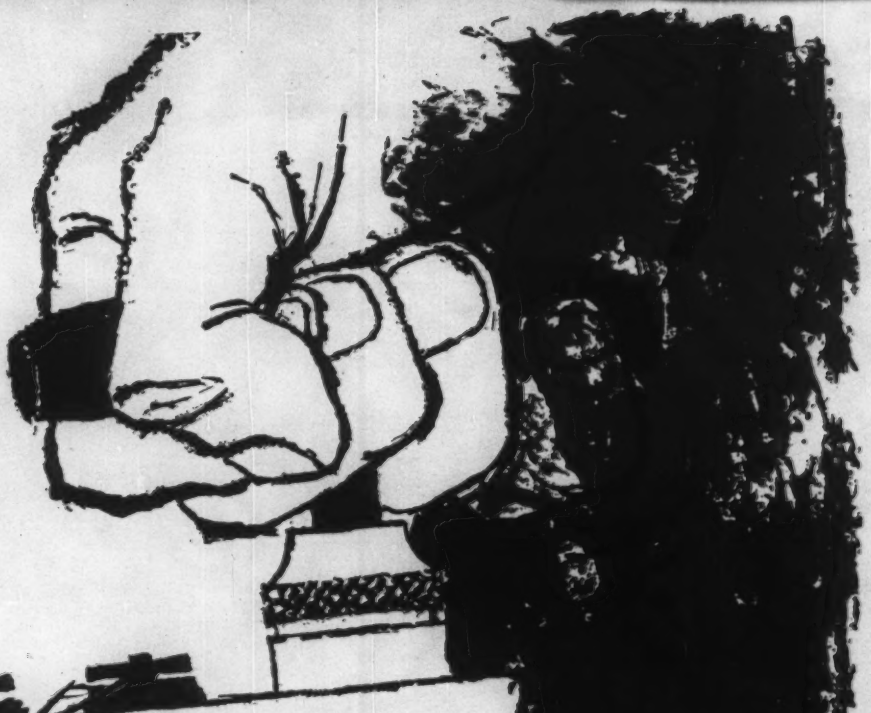

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**TRIPLE-TOUGH (3-T) NYLON CORD**

Like steel, tire cord must be *tempered* to be tough.

Goodyear's exclusive 3-T process, involving Tension, Temperature and Time, *triple-tempers* cord to make it TRIPLE-TOUGH—to give you longest tread and tire life, lowest cost-per-job.

With this greatest tire *saver* in 23 years, Goodyear builds off-the-road tires that have the advanced design and *sheer muscle* to overpower the meanest job conditions. If you haven't used Goodyears lately, your jobs could be costing more than need be.

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MOBILE TIRE CARE PROGRAM helps keep the job rolling at lowest final cost.

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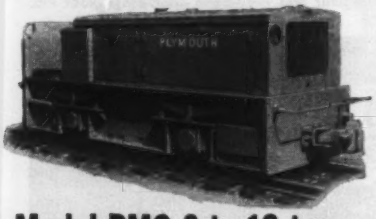
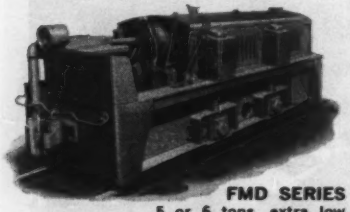
MINE-O-MOTIVES
cut haulage costs
in tough tunnel and
mine operations



Model DMS 8 to 12 tons
...other compact,
powerful models 3 to 10 tons

Do you have a tough construction, tunneling, or mining job? Plymouth Mine-O-Motives with Diesel-hydraulic power and exhaust conditioners take them all in stride, are presently working on some of the toughest jobs in the U.S.A. Available with chain or shaft drive, the extra-rugged construction of Plymouth Mine-O-Motives will save you money and help you beat deadlines. Send a brief outline of *your* hauling problem to Dept. A-4 today!



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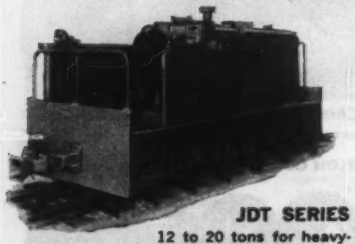

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# What Length Columns?

Sir—Mr. John A. Sbarounis' letter (ENR Oct. 30, p. 8) called attention to a most interesting and important problem of building frame analysis. His discussion of the Inland Steel Building dramatically demonstrated the grave errors which can be caused by assuming that the effective unsupported length of columns equals the story height.

For structures where side sway is not prevented by shear walls or other means, this assumption is the lower limit for effective column length. It can be realized only when the relative stiffness of girders becomes infinite in relation to column stiffness.

In preparing recommended revisions to the Building Code of the City of Boston, the Structural Steel Committee, of which I am a member, has carefully considered this problem. The new code will provide a simple method for obtaining the effective unsupported column length based on relative girder to column stiffnesses at each end of a column.

In order to avoid awkward formulas, the code will use nomographic charts for determining effective length factors.

Using our proposed code, I computed the equivalent unsupported length for the columns in a building frame which approximates the Inland Steel Building. The result was a length equal to three times the story height which agrees very closely with the results of Mr. Sbarounis.

The code committee believes that the modern tier building built with thin curtain walls and no other shear walls is particularly sensitive to the instability of columns where they are supported laterally only through frame action. I am happy to see that this problem is being considered by other engineers.

The problem of column design has long been oversimplified both in practice and in the classroom. Perhaps a revision of nationally recognized design specifications is in order.

William J. LeMessurier
*Goldberg, LeMessurier & Associates*
*Boston, Mass.*

Sir—I was most interested to read the letter from Mr. John A. Sbarounis entitled, "Why Frames Are Unstable."

I must confess that I found it strange upon my arrival from Britain to find that columns here were designed without the degree of fixity afforded by the floor or spandrel being taken into account.

It may be of interest to note that in Britain the column length for design purposes varies from 0.7 to 1.5 times the distance between floors, and the coefficient used is dependent upon the degree of support afforded the column by the beams framing into it.

That this is considered important in Britain may be deduced from the fact that the British Standard 449:1958, The Use of Structural Steel in Buildings, devotes 15 pages to this.

G. T. Trotter
*Manitoba, Canada*

## School Dispute

Sir—Your editorial, "What Kind of Schools?" (ENR Nov. 27, p. 96) certainly capitalizes upon public opinion concerning school cost and extravagance. Both sides of the arguments are being considered nationwide.

I believe that each town or community has to vary its school expenses because of impending tax hikes, some towns being able to spend more than others for the same educational standards. Therefore, the responsibility lies with the architect himself to use sound reasoning on each community's economic standards before proceeding with his design.

Leslie M. Buckingham, Jr.
*Boston 16, Mass.*

## Local Group Pays

Sir—We wish to point out one misstatement of fact in the item "Concrete vs Steel" (ENR Nov. 20, p. 17).

The item refers to the alternate bids that will be taken by the New York City Housing Authority on the Woodrow Wilson Houses. In it this statement is made: "The odds now favor

(Continued on page 12)

**Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.**

AS A RULE,

SCHOOL-BUILDING WITH

# INSULROCK

ADDS UP TO

SIZABLE SAVINGS

**Weather-resistant, good-looking INSULROCK used as roof decking provides ceiling for corridor outside classrooms of new Hillcrest High School, Simpsonville, S.C. Architect: Wm. Freeman & Associates; Contractor: Triangle Construction Company, both Greenville, S. C.**

*Extra schoolrooms may cost nothing extra!*

Insulrock Building Slabs, used for load-bearing, long-wearing, incombustible roof decks, sometimes cut building costs enough—by costing much less to buy, apply, maintain—to help build extra rooms without extra appropriations.

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Incombustible Insulrock minimizes fire hazard for roofs, partitions, ceilings. It's "weather-cured," weather-resistant, strong, unharmed by insects and fungi. Its soft, off-white ceiling finish reduces glare, increases lighting efficiency, protects children's eyesight.

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*Plus bonus ceilings that Insulrock always gives!*

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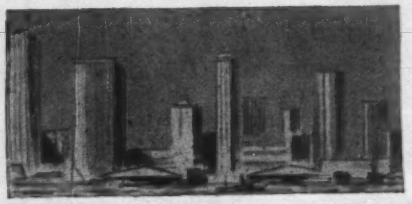

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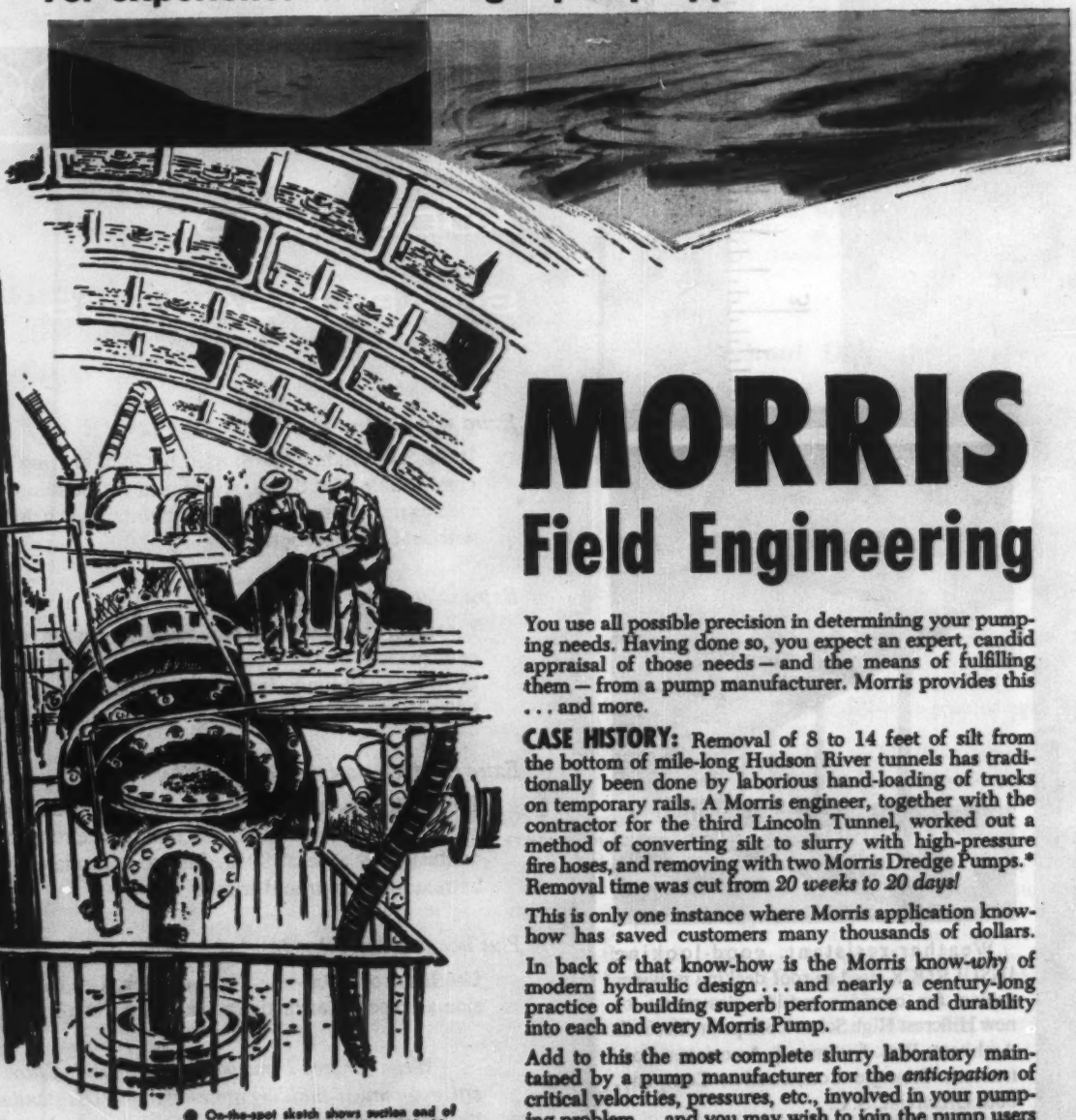

# MORRIS
## Field Engineering

You use all possible precision in determining your pumping needs. Having done so, you expect an expert, candid appraisal of those needs — and the means of fulfilling them — from a pump manufacturer. Morris provides this . . . and more.

**CASE HISTORY:** Removal of 8 to 14 feet of silt from the bottom of mile-long Hudson River tunnels has traditionally been done by laborious hand-loading of trucks on temporary rails. A Morris engineer, together with the contractor for the third Lincoln Tunnel, worked out a method of converting silt to slurry with high-pressure fire hoses, and removing with two Morris Dredge Pumps.* Removal time was cut from *20 weeks to 20 days!*

This is only one instance where Morris application know-how has saved customers many thousands of dollars.

In back of that know-how is the Morris know-*why* of modern hydraulic design . . . and nearly a century-long practice of building superb performance and durability into each and every Morris Pump.

Add to this the most complete slurry laboratory maintained by a pump manufacturer for the *anticipation* of critical velocities, pressures, etc., involved in your pumping problem . . . and you may wish to join the pump users all over the continent who come to Morris for help in pump applications engineering.

● On-the-spot sketch shows suction end of dredge pump, protected by grizzly (debris rack), removing silt from third tube of Lincoln Tunnel. Illustrated reprints of article covering this operation are available on request.

*Two Morris 10 OA 28½" Pumps (right) were used . . . one as a dredge . . . the other as a booster.

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made up of factory-assembled panels
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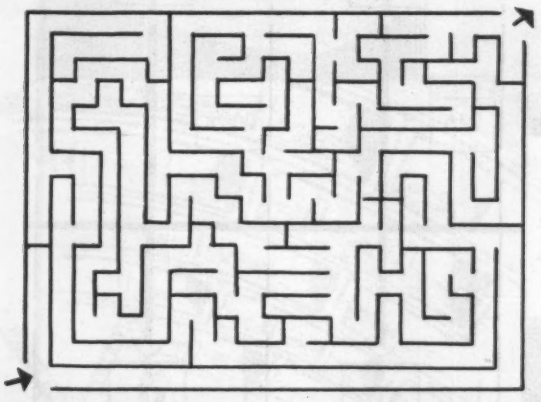
Berlin (West) EXPORT DEPARTMENT Frankfurt (Main)

# TRICKY TRACINGS

**TRY IT!** Without crossing lines or retracing, how quickly can you go from one arrow to the other? See average time below.



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## . . . Reader Comment

steel, because the American Institute of Steel Construction is paying for the alternate design."

We wish to call to your attention that the money for the alternate design was contributed by a group of local fabricators who operate in the New York City area. This group includes both members and non-members of AISC. No money was actually contributed by the AISC, but we did transmit the funds to the Housing Authority.

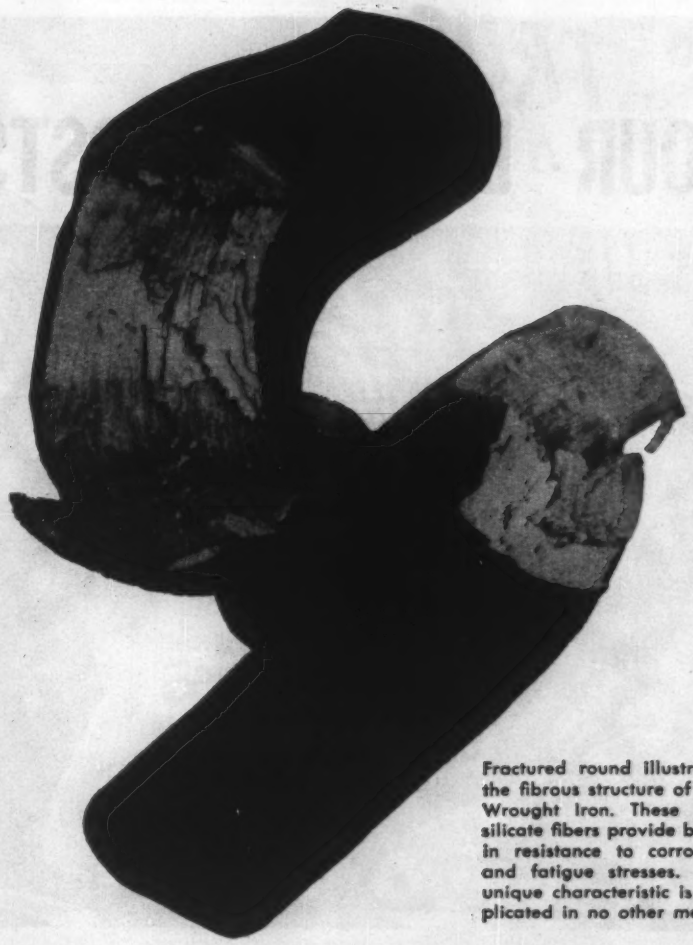
L. Abbett Post
*Executive Vice President*
*American Institute of Steel Construction, Inc.*
*New York, N. Y.*

## Dropped a Cipher

Spillway discharge capacity of Pakistan's Mangla Dam will be 1,000,000 cu ft per sec—not 100,000 cfs as reported in ENR July 24, p. 55.

## For Your Calendar . . .

**Highway Research Board,** Sheraton-Park, Washington, D. C., Jan. 5-9.
**National Concrete Masonry Association,** 1959 convention and biennial Concrete Industries, Exposition, Public Auditorium, Cleveland, Ohio, Jan. 12-15.
**Building Research Institute,** "Noise Control in Buildings," New Yorker Hotel, New York City, Jan. 14-15.
**Canadian Construction Association,** Queen Elizabeth, Montreal, Canada, Jan. 18-22.
**National Association of Home Builders,** Hotel Conrad Hilton, Sherman Hotel, and Chicago Coliseum, Chicago, Ill., Jan. 18-22.
**American Road Builders Association,** Materials and Services Division, Dallas Memorial Auditorium, Dallas, Texas, Jan. 19-22.
**Associated General Contractors of America, Inc.,** Hotel Americana, Miami Beach, Fla., Jan. 19-23.
**Associated Equipment Distributors,** Hotel Conrad Hilton, Chicago, Ill., Jan. 25-29.
**Association of Asphalt Paving Technologists,** Brown Palace, Denver, Colo., Jan. 26-28.
**American Society of Heating and Air Conditioning Engineers,** Convention Hall, Philadelphia, Pa. Jan. 26-29.
**National Crushed Stone Association,** Americana Hotel, Miami Beach, Fla., Jan. 26-30.
**Society of Plastics Engineers,** 15th annual technical conference, Hotel Commodore, New York City, Jan. 27-29.
**National Bituminous Concrete Association,** 4th annual meeting, Americana Hotel, Miami Beach, Fla., Feb. 2-6.
**Mason Contractors Association of America,** ninth annual convention and 1959 show, Chase-Park Plaza Hotels, St. Louis, Mo., Feb. 15-18.
**National Ready Mixed Concrete Association,** Roosevelt Hotel, New Orleans, La., Feb. 15-19.
**American Concrete Institute,** Statler Hilton Hotel, Los Angeles, Calif., Feb. 23-26.
**National Council for Stream Improvement,** Waldorf-Astoria, Astor Gallery, New York City, Feb. 23-25.
**32nd Highway Engineering Conference,** University of Colorado, Boulder, Colo., Mar. 5-6.
**American Society for Public Administration,** Statler-Hilton, Washington, D. C., Mar. 16-18.
**National Association of Corrosion Engineering,** Hotel Sherman, Chicago, Ill., Mar. 16-20.



Fractured round illustrates the fibrous structure of 4-D Wrought Iron. These iron silicate fibers provide built-in resistance to corrosion and fatigue stresses. This unique characteristic is duplicated in no other metal.

RAILINGS

GRATINGS

TRASH RACKS

LADDER STEPS

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Our company has *always* manufactured Wrought Iron bars and shapes in limited sizes. But increased demand for 4-D Wrought Iron in commercial, industrial, and residential specifications has prompted us to supplement our line even more fully.

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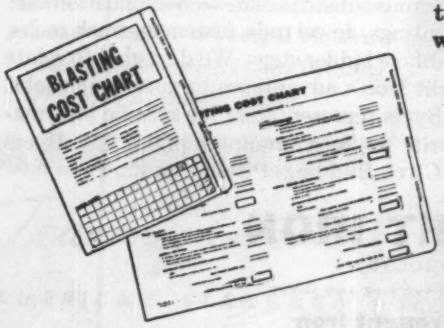
The Atlas Blasting Cost Chart enables you to protect or improve your profits. What's more, it's yours without cost and you can keep your figures confidential. The Atlas representative nearest you will be glad to show you how it works—without obligation.

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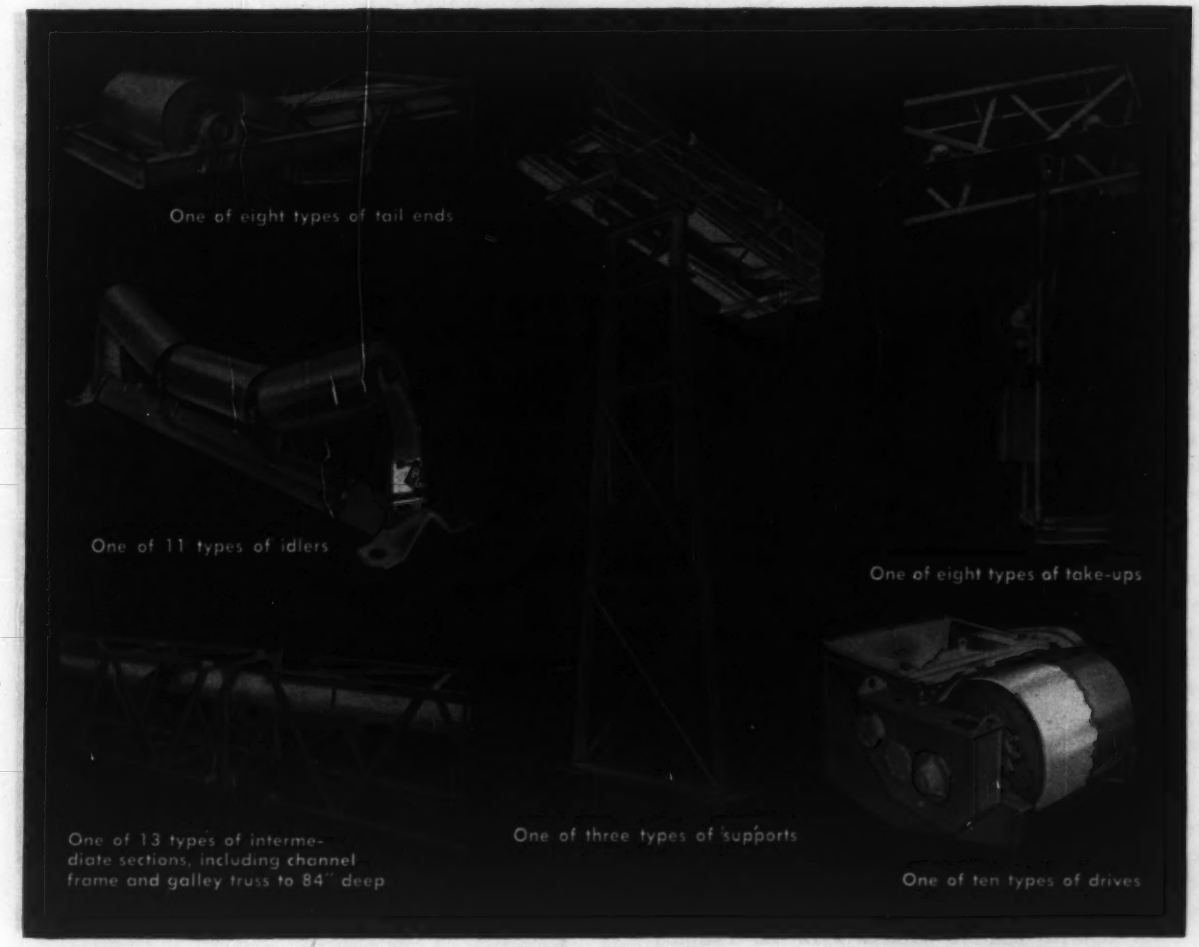
One of eight types of tail ends
One of 11 types of idlers
One of eight types of take-ups
One of 13 types of intermediate sections, including channel frame and galley truss to 84" deep
One of three types of supports
One of ten types of drives

**Pictured here are just a few of the many Barber-Greene standardized conveyor components. Each is available in a wide variety of types and sizes, with unmatched flexibility for countless ways of assembly. Write for new bulletin.**

# Boost conveyor efficiency and cut costs with Barber-Greene standardized components

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# ENGINEERING NEWS-RECORD

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CONTENTS


NATIONAL AFFAIRS

Struggle Ahead on U. S. Spending..... 21
Aluminum Chapel Ready for Bids..... 23
Germans Drum Up a Bridge..... 23
Big Work Stage Goes to Sea..... 24
Foundation Engineer Wins Raymond Award... 25
Where They Will Go to Worship on Christmas.. 26
How Russia Teaches Engineering..... 28

SPECIAL COST FEATURES

What Price Colored Buildings?..... 29
Outlook for Costs in '59..... 39
Soaring Wages Will Escalate Costs..... 40
ENR Construction Wage Roundup..... 42
Gains in Wages, Earnings..... 44
Strikes Are Increasing Idle Time..... 46
Work Injuries: Down But More Severe..... 46
Compensation Insurance Rates..... 47
Building Cost and Price Indexes..... 48
Heavy Construction Indexes..... 52
Monthly Wage and Price Reports..... 54
New Twist: Contractor Retains Architect..... 59
How to Estimate Sewage Plant Costs Quickly.. 64
How Prices Dropped for Matching Schools..... 66
School Prices Beat Cost Rise..... 68
Where the Building Dollar Goes..... 76

NEW PRODUCTS

Standard Parts Produce Unusual Truck..... 99

BUSINESS AND FINANCE

States Need Construction Cash..... 123
Roofless House Brings Buyers..... 124
Happy '59 for Manufacturers..... 124
Contractors Deposit Bids at Banks..... 124
Anti-Merger Law Used Against Sand Firms..... 127

LABOR

The Stage Is Set for 1959..... 129
The Law on Hiring Unfolds..... 132
Engineers' Unions Seek Unity..... 133

Reader Comment ... 8 Unit Prices ..... 85
Calendar ..... 12 Construction Reports. 101
Washington Observer 19 Statistics, Indexes .. 121
Editorials ..... 142



*Back issues of* ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*


# THE CONSTRUCTION WEEK

**CONTRACTS: STRONG FINISH**—Heavy construction will finish the year on two high notes: December contract awards are running at the best monthly rate since last August; and that's pushing total 1958 volume over $19 billion (second only to 1956's record $21.7 billion). What's more, many large jobs still have not yet been awarded. They will give 1959 a good start when they go to contractors early next year.

**FABRICATORS SEE GOOD YEAR**—Structural steel fabricators will do a bigger business in 1959 than 1958. That's the word from the American Institute of Steel Construction, which says fabricators' bookings next year will top 3 million tons. This year, bookings are at 2.8 million. All-time high was scored in 1956 when 4.7 million tons were ordered. No supply problem is anticipated in 1959.

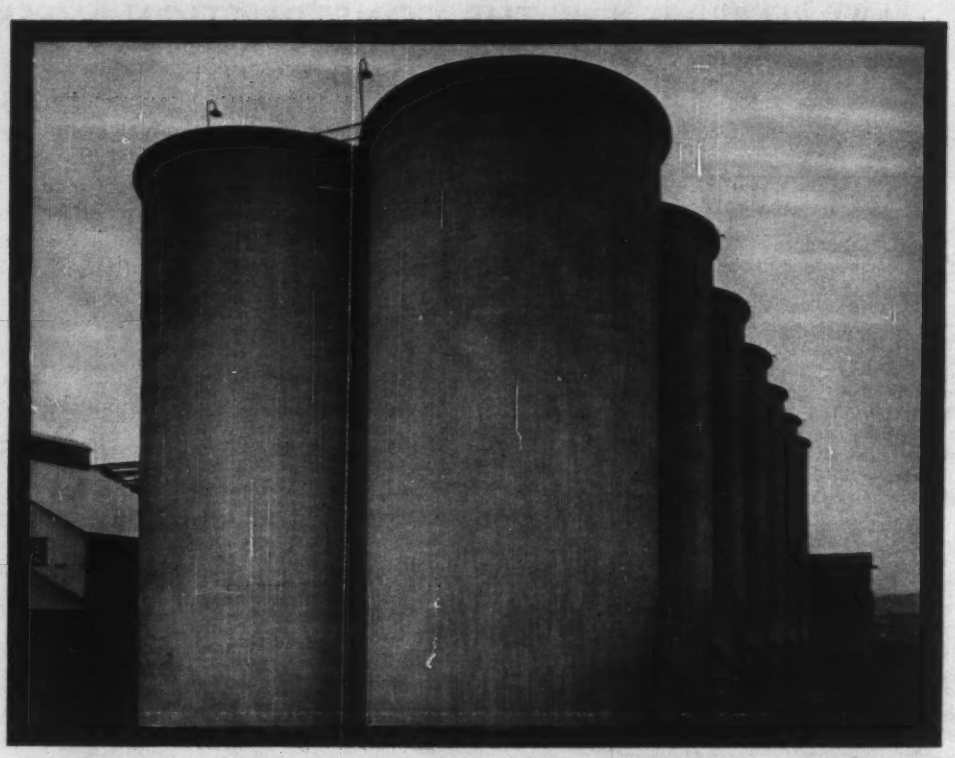
**BIG JOB COMING**—You can expect bid calls on the $200 million Wanapum Dam in Washington State between January 15 and February 1. The sponsor, Grant County Public Utility District, ordered the financial managers to postpone formation of an underwriting group. But that was basically a technical move; it's not expected to delay progress. Construction contract may be awarded about 60 days after the bid call.

**IRAQ STIRS**—In a state of unanimated suspension since its revolution, Iraq has lately made a few cautious moves to resume its vital economic development. A U. S. consulting engineer, with a large continuing contract, last week received the first payment for his services since the revolution.

**CONSULTANTS' FEES**—Consulting engineers will get new guidance for setting their fees early in 1959. Those who do highway work will get special help. New fee curves will be issued by the American Society of Civil Engineers. And the curves for highway work will have had special attention of highway groups outside ASCE—including the Federal Highway Administrator.

**COMING: AIR COOLING**—Shrinking water resources may make industrial cooling with water too costly. As a result factories will have to resort to air cooling. That's the veiw of Ralph T. Mathews, senior power consultant for the design division of E. I. du Pont de Nemours & Co., who reported at the annual meeting of the American Institute of Chemical Engineers.

**NEW YORK-MONTREAL CANAL**—Canadian engineers can't see any technical obstacles to a 37-ft-deep inland ship channel between New York and Montreal. A study just completed by Quebec engineers agrees substantially with an earlier American report.



# Huge Silos Store "Harvest" of Penn-Dixie Cement—For Package or Bulk Shipment

Penn-Dixie cement is stored in huge silos until the time comes for shipment. It is then either shipped in bulk or in paper bags. Silos like those shown above each contain 15,000 barrels . . . this entire battery of 14 silos holds over 200,000 barrels of Penn-Dixie cement!

The packaging operation is largely automatic. An ingenious self-closing valve in the paper bag is placed over the nozzle or loading tube of the packing machine. The flow of cement is automatically shut off when 94 pounds have entered, and the bag seals itself from the inside by the pressure of the cement. When shipped in bulk, the cement is pumped into covered hopper cars which were originally devised for the cement industry.

When it leaves our mill every ounce of Penn-Dixie cement is guaranteed to meet the most exacting specifications for consistency and quality.

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# WASHINGTON OBSERVER

- **Will President stand firm on public works?**
- **Federal airport aid gets a supporter**
- **Commerce plans new surveys of business**

● **As of this week, the Administration drive to cut federal spending hasn't hit any of the new starts ordered for this fiscal year.** Washington has been buzzing with rumors that this year's public works programs might be cut back. Before the election, the Budget Bureau said specifically that the program of starts would go through as planned. After the election, President Eisenhower took up the economy drive again and caused worries about a switch.

**Despite the campaign to cut spending, the Army Engineers and the Bureau of Reclamation are going ahead** with the starts as Congress voted money over the President's objections.

The Administration's stand on new starts for the year beginning next June 30 is another matter.

**Officials expect the President to take the same stand in his January State of the Union and budget messages as he did a year ago. He then recommended no new starts at all.** The new, heavily Democratic Congress will be sure to oppose him on this. But with the recession pressure off the White House, President Eisenhower may be inclined to be tougher in using his veto powers to cut spending.

**The unanswered question: How steadfast will the President stand** at a time when the liberals in his own party are organizing to combat what they consider his swing to the right?

---

● **Federal aid to airports will get a firm supporter January 1 when Gen. Elwood Quesada takes over the new federal aviation agency.** Actually, General Quesada has been on the job for some time, but the take-over isn't official until the first of the year.

General Quesada is strongly in favor of federal aid to finance runways—although he would exclude terminal buildings. He's likely to go along with some modification of the $100-million-a-year program that the President vetoed earlier this year.

---

● **Commerce Department next year plans to launch quarterly surveys that will give building materials producers and contractors a better line on the outlook for industry sales and inventories.**

The department will survey producers' intentions concerning inventories and sales. The idea is comparable to the successful surveys now made of consumers' intentions to buy, manufacturers' capital spending plans and employers' hiring plans.

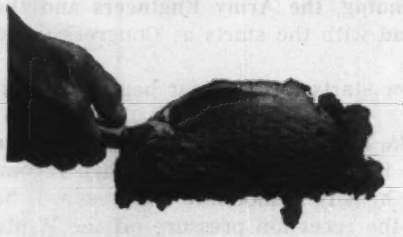
**The new surveys will encompass all areas of manufacturing, with 1,500 manufacturers praticipating.** Breakdowns will be available for major manufacturing industries.

The department already has made two dry runs and reports notable success with the inventory outlook. Not so successful are the sales anticipations; apparently more development is needed here.

**The new survey will offer a much-needed tool for better short-term forecasting of economic trends.**

# Good to the Core

## From Pilings to Frame to Masonry, a 100% LONE STAR Job



● The trend today is to space-saving center core design with lightweight reinforced-concrete frame —as shown in the new $3,500,000 Saratoga Building in New Orleans. From piling on up, from core on out, it is a 100% Lone Star job—and the ultimate in sound, fire-safe construction.

Fifteen stories tall, the 140-ft. by 94-ft. office building contains 160,000 sq. ft. of floor area, including a branch bank and commercial stores on the ground floor. The center core frame of reinforced concrete—housing elevators, stairs and utilities—provides great stability with fewer columns, allowing greater floor utilization. The electrical duct distribution system was cast into the floor rib joists, and air conditioning ducts are located between exterior walls and columns. 21 day strength of 3,750 psi was specified for the concrete floors, and 5,000 psi for the columns.

Lone Star Masonry Cement, used in laying up brick, block and stone, both *simplified* the job and assured *uniformly* high quality mortar:

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- High water retention means extra plasticity and workability . . . longer mortar beds, working header high before striking.
- High water repellency means durable, weather-resistant performance, making unnecessary the addition of any waterproofing material.

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# Struggle Ahead on U.S. Spending

- Federal construction outlays next year hinge on the outcome of a battle between a more liberal Congress and a more conservative President
- The Democrats in Congress will be pushing for larger outlays in most fields
- The President wants to keep spending at $80 billion. Many of his holddown orders will strike directly at construction plans
- Here's what you can expect to see in coming months . . .

Washington is bracing for a political struggle of classic dimensions.

The outcome will be of vital concern to the construction industry; on it rests the answer to this question:

**How much federal money should Congress allocate for highways, housing, flood control, irrigation works and airport construction?**

The contestants: A lame-duck Republican President turning more conservative as he enters the last two years of his final term; a Democratic Congress suddenly swollen with aggressive liberals.

**The basic issue is the government's role in economic and social welfare.**

How much should the government spend on these programs in a period of relatively high prosperity and low unemployment, recession-lowered revenues and defense-raised budgets?

**President Eisenhower demands stark economy** in the requests his departments and agencies present to the 86th Congress, convening January 7. Last week he promised to send a balanced budget to Capitol Hill.

**Congressional Democrats think the President's vision is cloudy.** They believe the voters' refuted his philosophy on election day. Many Democrats campaigned, and won, with a platform calling for more expensive programs in education, slum clearance, highways, health and scientific research, and aid to chronically depressed regions.

The veto, and the threat of veto, will force the liberal majority in Congress to compromise in many cases.

All the promises can't be kept, but, generally, 1959 will bring bigger, more expensive government.

Here's how the major construction issues shape up in advance of the new Congress:

## 1. Housing: Showdown

**Congress will come up with a big omnibus housing bill, larger than the one blocked this year. This will ring in one of the first legislative battles of the new Congress.**

The Democrats were out-maneuvered on housing in the last Congress.

Early in the year Congress voted $4 billion in new mortgage insuring authority for the Federal Housing Administration. Then, later in the session when Congress produced an omnibus bill loaded with pet Democratic housing proposals, the liberals among them found themselves with not enough leverage to push it through. Conservative House Democrats killed the bill.

Now FHA again needs an immediate mortgage insurance authorization. It is preparing to ask for over $6 billion. Democrats may vote $1 billion or so, just to keep the FHA program from faltering.

But it's certain that this time they'll hold back the bulk of FHA's authorization for the omnibus bill. This maneuver will almost guarantee broad new housing legislation.

Here's what to look for next year:

- **FHA—Some $6 billion in new mortgage authority and some liberalization in terms.** Liberalization measures being talked about are these: lowering down-payment requirements; reducing the one-half point insurance premium; and raising the mortgage limits to $30,000 on one-family homes, with corresponding raises throughout the whole program schedule.
- **VA—Extension of the program for both World War II and Korea veterans and a possible new program for those who served since 1955**—the existing cutoff date. There is little chance that Congress will raise the interest ceiling above 4.75%.
- **Urban renewal—It will go through in a big way.** Congress may authorize federal grants of $300 million to $600 million a year for as many as 10 years. Up to $150 million of this will be available in "accelerating funds" for any year needed.
- **Public housing—Liberals are talking about authorizing up to 200,000 units a year.** But a battle is shaping up. President Eisenhower's idea of a public housing program is about 35,000 units a year.
- **College housing and related facilities—The Administration wants $200 million** to take care of loan applications through next June 30. **But the Senate's bill for college and hospital construction will come closer to $775 million**—the same as in the 1958 omnibus measure.

## 2. Schools: A Fighting Chance

**The 86th Congress just might take a historic step and accept the liberal theory that the federal government does indeed have a responsibility for helping to build and maintain a sturdy system of public schools.**

One thing is clear: Legislation for federal aid to school construction will have a better chance in 1959 than ever before. That's because of the increase in the number of liberals in Congress.

Problems—both financial and emotional—cloud the outlook.

School legislation would put a dent in the budget and, once started, would become a continuing major program of spending. The bitter resistance in the South to school desegregation adds spine to the reluctance of conservatives from all regions to vote a program that

## . . . Congress' efforts to swell public works outlays may be thwarted

could—theoretically or actually—extend federal control over a state or local body.

**A school construction bill might look like this:** A four-year program with Washington paying $25 the first year, $50 the second, $75 the third and $100 the fourth for each school-age child. Total cost: $1.1 billion the first year, $4.7 billion by the fourth year.

As a concession to states' righters, the sponsors would give the states discretion on the money's use for either building schools or raising teachers' salaries, or both.

Such a bill would travel through Congress under the shadow of a probable Presidential veto.

### 3. Airports: Classic Test

**Nowhere is the conflict between the President and Congress more clearly drawn than in the battle over federal aid for airport construction.**

President Eisenhower this year vetoed Democratic Sen. Mike Monroney's $475 million, four-year federal-aid program. Congress will push it again and the Administration will object again.

In its place, the Administration will offer a less grandiose program—probably confined to runways and navigational aids. It would exclude terminal buildings, hangars and similar structures now eligible for federal help.

### 4. Public Works: The Ax?

**The Administration will put the brakes on public works projects unless there is another economic downturn.**

Despite Congressional appropriations, public works spending is easy to control; when the time comes for spending, it's up to the Budget Bureau to release the money.

The last Congress came up with a $1 billion-plus omnibus rivers and harbors bill. The Army Engineers and Reclamation Bureau are going ahead with plans for spending that money on water resources work in the present fiscal year.

Public works lobbyists obtained Budget Bureau assurances that the full amounts Congress voted would be obligated for work in the coming fiscal year. (Nearly $900 million of the $1 billion total is specifically for construction—$670 million for the Engineers, $218 million for Reclamation.)

Since the agreement, however, the Administration started its drive to squeeze the upcoming budget. Those who follow public works programs closest now feel two things are inevitable:

- The Budget Bureau will refuse to approve spending any money in the new budget for new starts. To begin work now would cost little. But once work starts, appropriations in future budgets would be needed.
- President Eisenhower will fight against any new starts and against stepping up the rate of spending on works already in progress.

The National Rivers and Harbors Congress, a potent lobbying group, will put heat on Congress for even more money than 1958's record—probably $1.25 billion to $1.5 billion.

The outcome is anybody's guess, but here's a cautious prediction:

**Congress will force White House assent to appropriations for a number of new starts (although less than the 64 authorized in 1958) and, also, a fairly good list of pending projects for construction in future years.**

It appears, however, that whatever projects are lined up for future years will be approved in a series of one-shot legislative bills. There probably will be no new omnibus bill in 1959.

### 5. Military: Cuts Coming

**It's a good bet Congress will vote at least as much for military construction next year as it did last year—and it may be more. But the Administration will spend what it wants—meaning less than what's voted.**

Even so, chances are Congress will try to raise the ante by increasing the Administration's budget, as it did last year.

For this fiscal year, military construction outlays will come close to $2 billion.

For the new fiscal year, starting next July 1, the Administration wants to pare that amount by 10 to 15%. It also counts on reducing by at least 20% the $1.9 billion rate of new contract awards in this fiscal year.

### 6. Highways: A Problem

**Spending for highway construction is expected to top $7 billion in 1959, compared with about $6.2 billion in 1958. So some hot issues must be solved next year.**

Hottest is the state of the highway trust fund. It needs about an extra $1 billion if the schedule established in the National Highway Act is to be maintained.

The trust fund surplus built up in the first couple of years under the act is dwindling fast. It is estimated that the deficit between current income and outgo of the fund will rise to $200 million by the fall of 1959.

**The problem in 1959: Raise new money.**

Sen. Harry F. Byrd's pay-as-you-go provision in the program was lifted in 1958 for two years. Presumably Congress may be willing to grant another exemption, but the Administration says it does not intend to let highway building swell the Treasury's general deficit.

The Administration wants user taxes increased enough to bring in the extra needed money. The prime target is gasoline. Distasteful though it may be, Congress will hike the user taxes earmarked for the trust fund. Gasoline will be raised 1 cent, making it 4 cents a gallon.

### 7. Labor: Reform

**A mild labor reform bill, patterned after the ill-fated Kennedy-Ives measure of 1958, seems likely to pass Congress.**

The Administration won't be happy with any legislation that doesn't embody two of its key points. Here are the approaches:

- Democratic liberals, with AFL-CIO support, will bring out a bill similar to the Kennedy-Ives measure. It will concentrate on anti-racketeering provisions. This includes policing union officers and union treasuries, and setting up rules for elections giving rank-and-filers a bigger voice. There will be criminal enforcement provisions.
- The Administration—with some middle-roaders in Congress in support—will insist on banning secondary boycotts and "blackmail" picketing.

Both of the Administration's basic proposals would hit the building trades and the teamsters in particular. One would outlaw union pressure on an organized employer to help out against a non-union employer during a bargaining dispute. The other would forbid a union from picketing a construction site or plant after the employees had rejected the union.

Although Congressional votes seem assured for a moderate reform bill, the big hitch is Labor Secretary James P. Mitchell. He doesn't want any bill that fails to outlaw secondary boycotts or blackmail-picketing. But he refuses to say whether he will recommend a veto.

### 8. Power: Gains

**Expansion of the federal role in electric power production will loom over all proposals.**

An important aspect is atomic power. The Democratic-run Joint Committee on Atomic Energy has drawn up a long-range program that envisions spending $875 million for 10 or 12

reactors. This would make nuclear power competitive in the U. S. by 1970.

There's little doubt that a big program will be voted. The question is whether the projects will be federally supported in their entirety or built in partnership between the federal government and local private interests.

Then there are the perennial proposals. Some, like the Tennessee Valley Authority's self-financing bond program for expansion, are expected to have relatively easy sailing. Others, like Democratic Sen. Richard Neuberger's plan for a Pacific Northwest Development Corporation, appear to be at least one year from serious Congressional consideration.

Facing almost certain veto, if passed, is the recurrent proposal to undo Idaho Power Company's work on three low dams on the Middle Snake River by building a high federal dam at Hells Canyon.

Lots of action will develop around gorges of the Middle Snake.

This is the picture:

The Army Engineers recommend a high dam at the Mountain Sheep site. It would back up the Snake and Imnaha Rivers to the third low dam in Idaho Power's series of three downstream. This would permanently block a big dam at the Nez Perce site.

The Bureau of Reclamation opposes the plan. It prefers a high dam farther upstream at the Pleasant Valley site.

The fighting over counter proposals could possibly result in no 1959 Congressional action on a federal dam at any of the sites.

One issue Congress cannot avoid is solution of power development at the Trinity (Calif.) Dam.

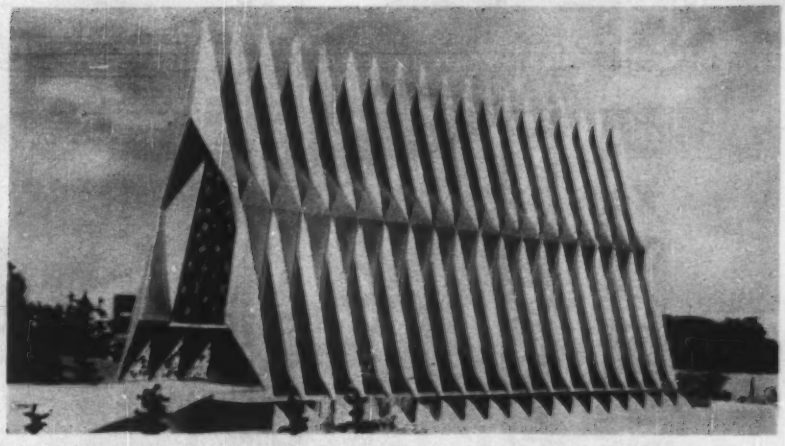
The Administration, under its partnership concept, has a proposal pending that would allow Pacific Gas & Electric Co. to build and operate the Trinity power facilities. Public power groups blocked this in the past. Now dam construction has reached the point where power facilities must be started during 1959. Congress will order federal development.

### 9. Taxes: No Relief

**Taxes will stay high.**

Wilbur Mills, chairman of the tax-writing House Ways and Means Committee, is a sincere fiscal conservative. He is reminding his fellow Democrats of the danger of the course they are embarked upon. However, he does not deny or decry the pressure for bigger outlays. Being a realist, he acknowledges the rise is inexorable.

Congressman Mills, the most important tax man in Congress, will not lead a fight for higher rates. However, he is warning that Congress may have to broaden the tax base.



# Aluminum Chapel Ready for Bids

Bids will be opened about February 17 on a contract to build the interdenominational Air Force Academy chapel near Colorado Springs, Colo.

Invitations to bid will be mailed to prospective bidders on January 2, reports the Air Force Academy Construction Agency (AFCA), in charge of the project. Construction is expected to take about 18 months.

Construction was approved by Congress and funds were earmarked for it. The chapel features 17 soaring aluminum spires, alternating with stained glass panels. There are separate naves for Protestant, Catholic and Jewish services. It will seat 1,500.

The two-story structure with basement will have a total floor area of 54,000 sq ft. The Protestant nave, on the upper level, will seat 900. The Catholic and Jewish naves, on the lower level, will have 500 and 100 seats, respectively.

Exterior walls and roof will have steel framing and aluminum facing, fixed windows and precast concrete panels. Concrete block and wood panels are to make up the interior partitions.

Skidmore, Owings & Merrill, Chicago, are architects-engineers for the entire academy building program. Walter A. Netsch, Jr., a general partner, is credited with the chapel concept.

# Germans Drum Up a Bridge

Old oil drums are playing an important role in the construction of the Kochertal Bridge being erected near Heilbronn, West Germany. The drums will serve as forms for voids in the monolithically placed concrete of the diaphragms and deck of the new structure.

**To clear the Golden Gate Bridge, record-size mobile offshore platform had to lower its legs.**

# Biggest Work Stage Goes to Sea

The biggest mobile offshore platform ever built went to sea last week in California. It is a half-acre, 4,500-ton barge with legs 275 ft high.

The rig will be used to lay five miles of concrete pipe 12 ft in diameter as an effluent outfall for Los Angeles' Hyperion Sewage Treatment Plant.

In moving out of San Francisco Bay from Richmond, Calif., where it was fabricated, the platform probably became the tallest marine structure ever to pass under the Golden Gate Bridge. The distinction was not without complications. To clear the bridge, the platform's 700-ton legs had to be jacked down into the water. And they had to be jacked up again to clear a sand bar to seaward from the Golden Gate.

The barge is a 190 x 122½-ft work platform with a 17-ft-deep hull of watertight compartments. Hydraulic jacking mechanisms raise and lower the 17-ft-square legs through wells near the corners. With the legs lowered to the ocean bottom, the jacks can raise the barge out of the water.

In raised position, the platform will guide the heavy concrete pipe at the Hyperion job into place in 192-ft increments. Starting at the inshore end, where 4,000 ft of pipe has already been placed from a trestle, the platform will work its way seaward to a point more than five miles offshore and 200 ft deep.

In addition to the size of its platform, the rig is significant in that it will work in deeper water than any offshore mobile platform has to date. This could expand the horizons of offshore platform work.

When the platform reached deep water on its way through the bay, the legs were jacked down until they extended 62 ft below the hull and about 200 ft above water. This height cleared the Golden Gate Bridge by some 25 ft. (The bridge provides 220 ft clearance at high tide, but the platform passed under at low tide.)

On the sea side of the bridge, the legs were jacked up until the entire assembly drew only 27 ft of water. This was necessary to clear the sandbar outside the Golden Gate.

**PLATFORM** climbed its legs during fabrication, as it will on the job.

In deep water again, the legs were jacked down until the rig drew 49½ ft of water. This provided the stability needed for the 3-knot-per-hour, five-day haul to Southern California.

The rig was built in shallow water with the legs planted on the bottom. The barge was jacked up the legs as leg sections were added. An earlier attempt was made to do the job in deep water. With the barge floating, the legs were lowered as sections were added. Swift bay currents tore the barge loose from its moorings, however, and forced the builders to abandon this method.

The pipelaying contractor and owner of the mobile platform is Hyperion Constructors, a joint venture of Raymond International (sponsor), DeLong Corp., Healy-Tibbitts Construction Co., Peter Kiewit Sons Co., Macco Corp. and Tavares Construction Co. DeLong Corp. planned the rig, using principles designed for offshore oil-drilling platforms, radar platforms and pier assemblies.

The barge was fabricated by Pacific Coast Engineering Co. at Alameda. The legs were fabricated by Kaiser Steel at its Napa plant. The jacking mechanisms were made by Yuba Consolidated Industries. Judson Pacific-Murphy Corp. assembled barge, legs and other components at Richmond.

## Congress to Get New Plea On Cross-Florida Canal

Florida's Congressmen will renew efforts in Washington this year to get federal money for the long-dreamed-of Cross-Florida Barge Canal. It would cost some $165 million.

The waterway would be a link in a protected water route from Trenton, N.J., to the Gulf of Mexico. It would connect the St. Johns River on the East Coast with the Gulf, using part of the Oklawaha and Withlacoochee Rivers.

Authorized by Congress in 1942 as a war measure, the project was recently approved by the Corps of Engineers as "economically feasible" for commercial use as well.

Construction of the big ditch was actually started in 1935 as a ship canal along the same route proposed for the present barge canal.

Appropriations were approved in 1935 as a relief measure to provide employment under the Works Progress Administration. But in the following year the job was stopped when the first appropriation was used up and Congress refused to provide more (ENR April 2, 1936 p. 479).

The latest plan calls for a high-level barge canal with five locks. Water levels in the canal would approximate the natural groundwater levels across the peninsula.

Two sizable lakes would be created along the midreaches of the Oklawaha River to provide increased recreational water areas. The canal would follow a dry-land cut north of the Oklawaha's lower reaches.

## New York City Will Get $68 Million U. S. Building

A design contract for the largest federal office building ever to be built outside the Washington, D.C., area has been awarded jointly to three New York architectural firms.

The structure is a multistoried Federal Customs court and office building, to be constructed in New York City.

The Public Buildings Service of the General Services Administration awarded the contract to the firms of Kahn & Jacobs; Alfred Easton Poor; and Eggers & Higgins.

The cost-limit for the project has been set at slightly more than $68 million by Congress. The structure will provide about 1.8 million sq ft (gross) of space to house various federal government activities, including those of the local customs court.

The architects estimate that working drawings and specifications for the structure will be completed within 15 months.

# It's Worth $1,000

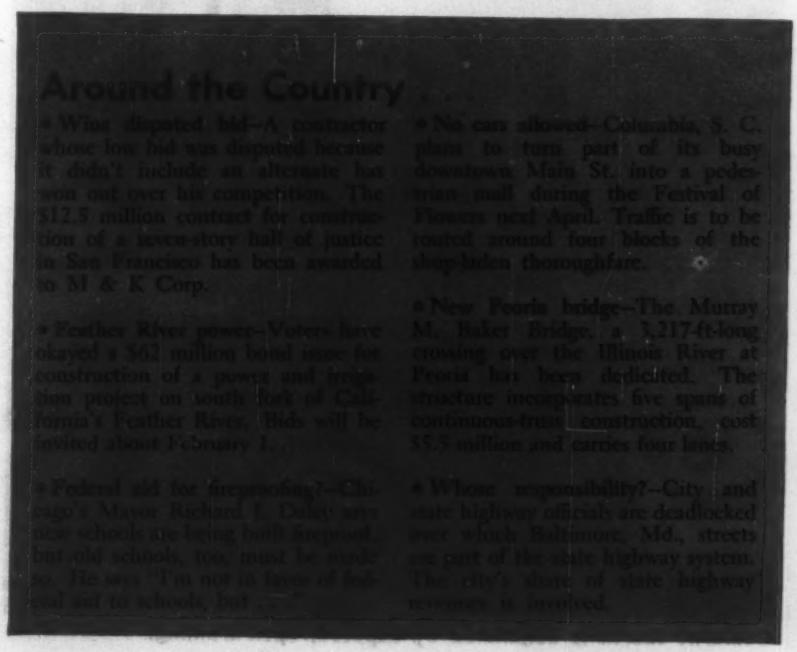
Martin S. Kapp (right), foundation engineer of the Port of New York Authority, received the first Alfred A. Raymond Award from Maxwell M. Upson, chairman of the board of Raymond International, Inc., sponsor.

Raymond established the award last year to stimulate interest in foundation engineering. A check for $1,000 goes with the honor.

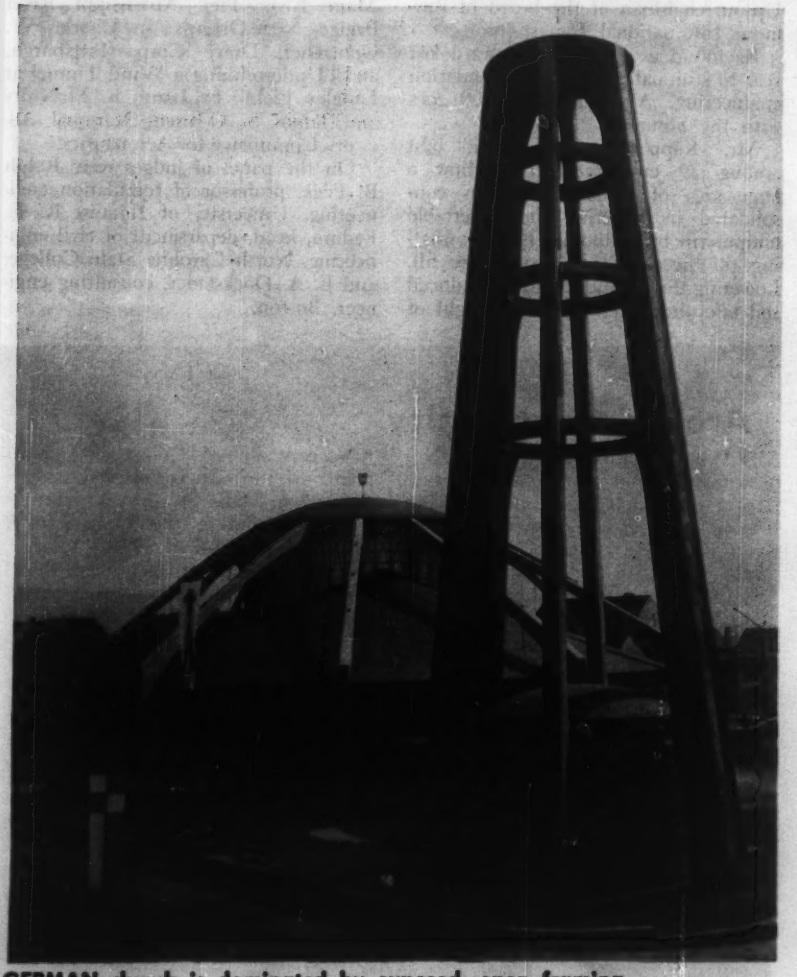
Mr. Kapp's paper, judged best among 29 entries, describes how a large area of unstable soil was consolidated by lowering the watertable temporarily by wellpoints, thus eliminating the necessity for a surcharge fill. Lowering the groundwater level reduced soil buoyancy, increasing the weight of an overlying sand blanket and effectively compressing the soft silt beneath.

Two other papers received honorable mention: "Construction of the Main River Pier, Mississippi River Bridge, New Orleans" by Charles W. Granacher, Dravo Corp., Pittsburgh, and "Underpinning a Wind Tunnel at Langley Field" by James F. McNulty and James S. O'Brien, National Advisory Committee for Aeronautics.

On the panel of judges were Ralph B. Peck, professor of foundation engineering, University of Illinois; R. E. Fadum, head, department of civil engineering, North Carolina State College; and E. A. Dockstader, consulting engineer, Boston.



**IN THE U.S. among many new churches with unusual shape is an octagonal one in Holyoke, Mass.**



**GERMAN church is dominated by exposed, open framing.**

# Where They

Bells for the year-end holidays will toll in some strange belfries around the world. For many of the newer churches depart considerably from conventional Gothic, Byzantine and Colonial architecture.

We have come to expect in recent years unusual shapes for many types of low buildings—houses, schools, warehouses, markets, arenas, theaters—but until the second half of this century there was little evidence to suggest that the trend to new forms would extend to churches.

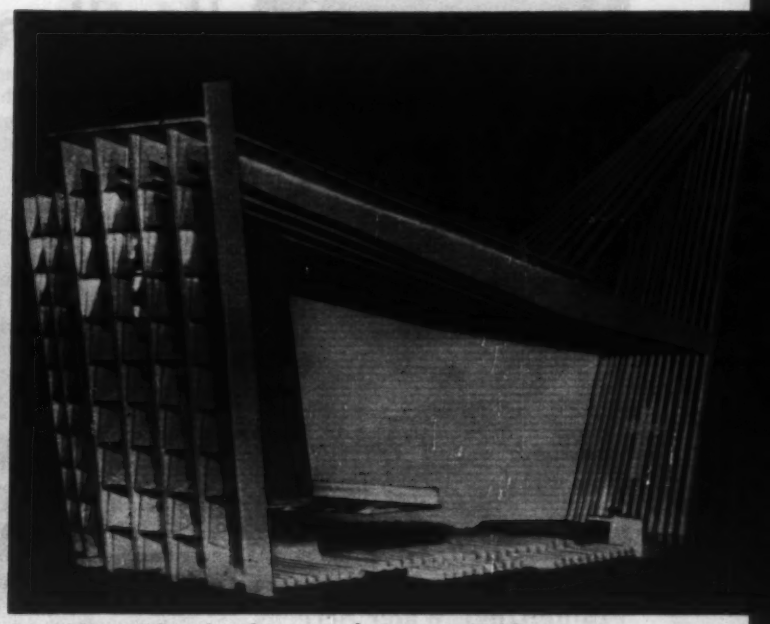
The old forms had served well for centuries; they were easily identified with religion. When you saw the characteristic Gothic, Byzantine or Colonial architecture, you almost always recognized the structure as a place of worship.

In contrast, the new forms, which are springing up in all parts of the world, do not always express clearly their function, perhaps because of our unfamiliarity with them. Nevertheless, they were designed to meet the needs of their congregations for space, esthetics and religious atmosphere.

Some examples of these unusual designs are illustrated on this and the next page. They include:

• **Octagonal church.** Designed by Chester F. Wright, architect, Waltham, Mass., for a congregation in Holyoke, Mass., it has a round roof on its eight-

IN GERMANY they come to this odd church.



IN NORWAY this church won a design competition.

# Will Go to Worship on Christmas

sided walls. A large cross marks its free-standing tower, which serves as both bell tower and chimney.

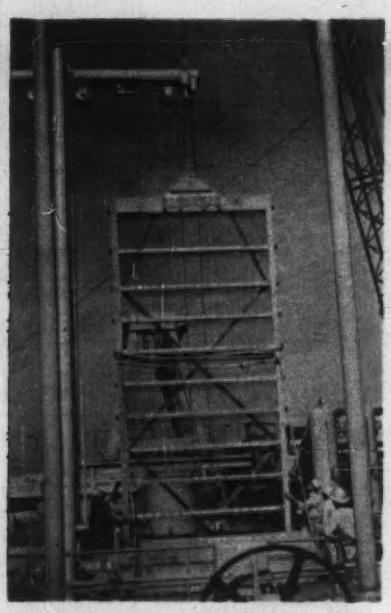
• **A-shaped church.** Laminated timber A-frames supporting the roof of this San Jose, Calif., structure are exposed and painted to emphasize the shape. Design was by Vincent G. Raney, San Francisco architect.

• **Exposed-frame church.** In Saarbrucken, Germany, this house of worship has three main elements: church proper, chapel and spire. The chapel is situated at the base of the open concrete spire, and the domed main building is girdled by a ring of concrete rigid frames. Dominikus Boehm, of Cologne, designed it.

• **Irregularly shaped church.** The design, for Kristiansund, Norway, by architect Odd Ostby, won first prize in a competition. Framing will consist of 16 concrete rigid frames with a span of about 115 ft. The roof girders will be prestressed and supported on sloping columns. To shorten the span, the girders will receive additional support from suspenders attached to upward extensions of one line of columns.

• **Greek-letter church.** Spire of this church in Hamburg, Germany, looks like the Greek alpha. And the roof of the auditorium, which will seat 800, forms the Greek omega. Reinhard Reimerschmid, of Munich, was the architect.

CALIFORNIA church looks from the front like a huge capital A.



## Structural Plastic Beams Frame Huge Water Screens

Southern California Edison Co. is switching to glass-reinforced plastic (picture) from stainless steel for the structural frames of a number of ocean-water screens.

The non-corrosive properties of the plastic are expected to keep the screens operable in salt water for far longer periods than the steel frames, which need substantial maintenance after a year of service.

Twenty of the corrosion-plagued metal frames at three plants are being superseded by plastic. The new plastic frames measure up to 26½ ft high by 12 ft wide and are designed to resist a load of 25 tons.

Each of the vertical support members is one-piece construction of glass fiber impregnated with resin, and weighs about 300 lb. They have channel sections with web and legs 5 X ⅜ in. Horizontal members are box sections about 4½ X 3½ in. The frame members are joined by bronze bolts and epoxy adhesive. Each screen is fixed to a permanent boom and lowered into 36½-ft-high side channels. Plastic casters molded into the outside of the vertical support facilitate raising the screens for cleaning and repairing of mesh.

The plastic material, with the name of Uniparr, is produced under license by X-Port Oils, Inc., Los Angeles. Flexural strength of 80,000 psi, tensile stress of 70,000 psi and compressive strength of 50,000 psi are claimed for the material.

The mesh is made of bronze and lasts little more than a year. However, it's easily replaceable and constitutes only a small portion of the cost of the units.

# How Russia Teaches Engineering

The standards of engineering education in Russia are high. Young Soviet engineers are well grounded and their best men are as good as any in the world.

But Russian youths are educated within an extremely narrow field and, for most of them, the concept of career has been reduced to a numbers game.

Those are the conclusions of the eight-man mission of U.S. engineering educators who returned last week from three weeks of study and inspection of 25 teaching and research institutions in the U.S.S.R.

The scope of engineering education in Russia is determined by the agency Gosplan, which administers the economic plans of the Soviet Union, according to the mission's report.

The current Seven-Year Plan specifies the number who may go into higher education; the number who may train for each field of specialization; the quota of each institution for each specialty; and the jobs that will be available at the time of graduation.

• **Narrow choice**—Each student must choose irrevocably an extremely narrow field of specialization when he applies for admission to college. Furthermore, he commits himself to work in this particular phase of industry.

The student is allowed to apply for only one field of specialization at one institution in a given year. If he is not accepted, he may not apply again until the next year.

Competition for admission to engineering schools is keen. The planned economy offers one opportunity for three to nine applicants, depending on the prestige of the college and the importance of the specialty. This leads less capable students to make their single yearly applications in fields and at schools where competition is low.

About one-third of the total enrollment of schools of engineering is made up of girls.

The available fields of specialization are tailored to the specific needs of the state. The various courses of study are narrowly defined. They prepare students to be useful immediately.

As a result, engineering in Russia is divided into some 160 separate specialties, such as mechanical engineer—automobile design, or mechanical engineer—automobile maintenance. In the U.S. there are about 20 accredited fields and the great majority of students are included in five fields.

The first two years of the 5- to 5½-year Russian engineering course are based broadly on mathematics and science. But the student's specialty is emphasized from the first day. The illustrations in mathematics, physics, chemistry and mechanics are designed to point up their application to his particular field.

The last 3 or 3½ years consist of increasingly specific courses, often built around design projects, industrial practices and an elaborate diploma project requiring a semester of full-time work.

• **But rewarding**—Why is this rigorous, straitening system so popular with Russian youth? According to the report of the U.S. delegation, "nowhere is the engineer and scientist held in higher regard than in U.S.S.R. . . . (They) are among the aristocracy of the Soviet Union."

A worker without a diploma seldom rises above the rank of foreman in Russia. This is considered the usual minimum for a graduate.

Although it is almost impossible to come up through the ranks, good engineering potential is not lost in Russia for lack of funds. There are state grants.

The mission found Soviet students extremely studious and purposeful in classrooms and laboratories. The only hazing they came across was of students who had done poorly in their work. About 90% of the successful applicants complete their diploma requirements.

The U.S. engineering educators said Russian programs of study were thorough and scientifically planned.

They agreed that engineering education in the U.S.S.R. cannot be compared realistically with that in this country, because it is tailored to quite a different system.

The U.S. mission was initiated by the Department of State under an agreement with U.S.S.R. for the exchange of scientific and cultural delegations. It was sponsored by the American Society for Engineering Education and the National Science Foundation with the cooperation of Engineers' Council for Professional Development. A comparable Soviet Educational mission is expected to visit here in February, 1959.

Frederick C. Lindvall, chairman of the division of engineering at California Institute of Technology, was chairman of the mission. Other delegates were William T. Alexander, Northeastern University; William L. Everitt, University of Illinois; Ralph E Fadum, North Carolina State College; Albert G. Guy, Purdue University; Newman A. Hall, Yale University; Ralph A. Morgan, Purdue Research Foundation, and Leon Trilling, Massachusetts Institute of Technology.

# What Price Colored Buildings?

Ever since some primeval caveman rubbed the first streak of red ocher across the wall of his cave, man has tried to add color to his surroundings.

Today even man's skyscrapers are taking on festive hues. And judging by the growing number of colored buildings, owners have decided color is worth paying for.

Building designers like the trend: More than 90% of the architects surveyed by the American Institute of Architects say they prefer color for metal curtain walls—even at extra cost.

The growth of color was spurred by the recent development of thin curtain walls for tall buildings. Competition among metal-wall manufacturers led to color for their products. And traditional building material manufacturers followed. Result: More and better colored materials for buildings.

Here's a description of major color products for building facades, how much they cost, their merits and their drawbacks.

## 1. Porcelain Enamel

Colored porcelain enamel is becoming increasingly popular. A wide selection of colors and durability are its prime assets. U.S. builders used this product on 724 new curtain wall buildings between 1954 and 1957, according to the Porcelain Enamel Institute. And porcelain enameled panels have been used extensively to modernize exteriors of old buildings.

Porcelain enamel is an inorganic, glass-like coating that is bonded to metal by fusion at temperatures above red heat. The resulting product has the hardness of glass and the strength of the base metal.

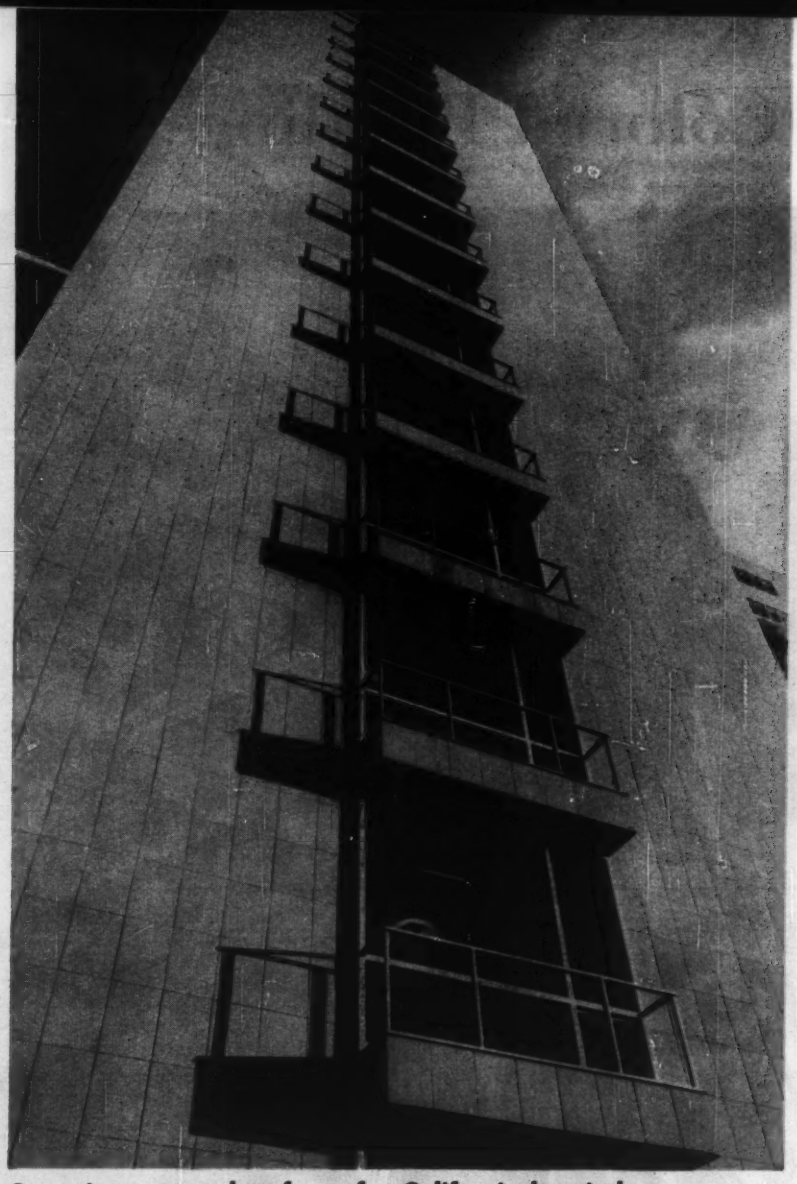
The enamel can be produced in almost every color and shade, in finishes ranging from high gloss to dull matte. Intricate panel designs can be formed by combining a variety of surface textures and colors.

The material requires little maintenance and has good weather resistance. Its inorganic surface wards off gases and acids. (A high gloss finish is completely acid-resistant; the matte finish still presents some problems.)

Its color will not fade, tarnish, craze or peel during the life of the buildings according to porcelain enamelers. And the panels get a cleaning every time it rains.

(*Continued on next page*)

**Chicago's $3.5 million Mutual Life Building has a blue porcelain enameled steel facade.**



**Ceramic veneer colors face of a California hospital.**

Steel and aluminum sheeting are the most common bases for porcelain enamel. Copper and stainless steel have also been used. Enamel on copper is translucent, so the natural appearance of the metal shows through.

• **What it costs**—One coat of colored enamel on a metal wall panel costs about 60 to 65 cents per sq ft. A second color ups the cost another 30 cents per sq ft.

Porcelain enameled steel is the least expensive of the popular enamel-metal combinations. But it has a drawback: The steel is subject to corrosion if the surface becomes chipped. When steel is used as a base, it's usually porcelainized on both sides and edges.

Enameled aluminum is more expensive than steel, but, with its greater corrosion-resistance, requires less enamel coating.

Benjamin B. Loring, vice president, Seaporcel Inc., offers this cost comparison: A laminated panel comprising a 1¼ in. cellular glass core would have an 18-gage porcelain enameled face with a 24-gage galvanized steel back. The equivalent in aluminum would be a 16-gage porcelain enameled face with the same gage back. The steel-backed panel would cost between $1.40 and $1.50 per sq ft. The aluminum panel: $1.85 to $1.90 per sq ft.

But there are other criteria to consider in deciding between aluminum and steel porcelainized panels.

• **Steel is more rigid.** And, because it has a higher melting point, you can get it in a greater variety of textures.

• **Aluminum is lighter,** to be as stiff as steel it must be thicker.

## . . . Varied materials

**Porcelainized copper forms color**

If the same work were done on copper as was done on the steel and aluminum described above, a 32-ounce copper would be needed. This would cost between $3.00 and $3.50 per sq ft, Mr. Loring says.

The price of stainless varies widely, depending on the gage used. It is usually more expensive than either steel or aluminum. But long-run costs may be cheaper for stainless because usually little maintenance is needed.

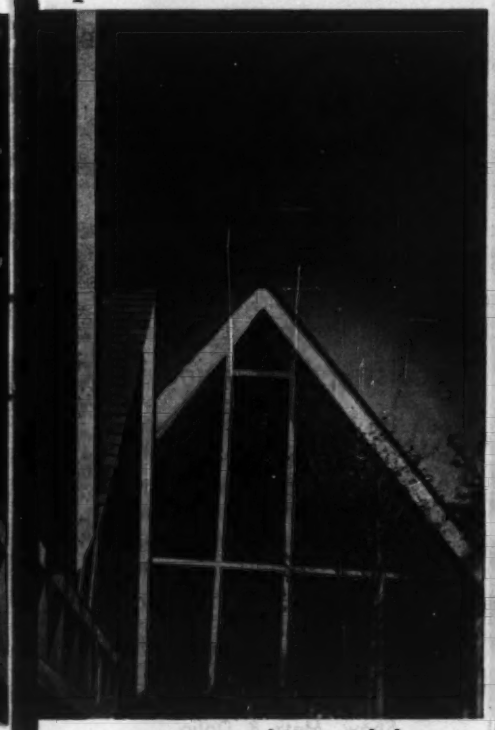
### 2. Anodized Aluminum

Color anodizing is another major method used on aluminum.

The recently completed 34-story, gold skyscraper in New York City (ENR Nov. 7, 1957, p. 28) was enclosed in 100,000 sq ft of gold anodized aluminum panels.

Anodizing is the application of a natural oxide film to the surface of aluminum by an electrochemical process (to provide added protection against weathering and corrosion). Inorganic dye is applied during the anodizing process and, as a hard coating of aluminum oxide forms, the dye becomes part of the metal.

Colors now available for exterior use are black, gold, blue-gray as well as aluminum's natural color. The color range can be further extended by using various aluminum alloys, since the alloys



**spectrum on this parish house.**

**Porcelain enamel steel panels brighten Farmers Exchange.**

also affect the color of the anodic film. Additional colors are now in the development stage.

Anodized color however, is not completely free of problems:

• **Color-matching of panels is difficult**—It's often a time-consuming task at the job site.

• **The permanence of some colors is still a question mark.** Tests indicate no appreciable fading with gray, black and gold—all inorganic dyes. Organic colors, however, are not as safe.

Aluminum is also being decorated with baked enamel and lucite coloring—a baked, resin vinyl coating. These processes have been used to a limited extent on several large aluminum buildings and a start has been made in applying baked enamel on the exteriors of small homes.

The National Homes Corporation will offer a prefabricated house in 1959 with baked enamel aluminum sidewalls and roof. Once the precedent is established, it may well spread to tall buildings.

• **What it costs**—There is no appreciable difference in cost between colored anodized aluminum and porcelanized aluminum. The question is: Which do you like better, the opaque quality of porcelain enamel or the lustrous quality of color anodizing?

A rough estimate by manufacturers places the cost of anodized panels at about 20 cents per sq ft. That's cheaper than porcelanized aluminum. But the additional time needed to match the anodized panels and the greater number of rejects during fabrication of these panels just about eliminates the actual cost differential.

Primarily because of the high rejection rate, colored anodized aluminum panels cost about 40% more than uncolored aluminum panels.

## 3. Stainless Steel

Thin curtain wall panels of black stainless steel are now on the market.

Three methods of coating can produce a dull, black surface: an acrylic coating; an inorganic, baked-on coating; and various oxide processes.

An unusual, baked-on blackening process has been developed by the Electro Metallurgical Co., a Division of Union Carbide. It's unusual in that metal parts can be severely formed after coloring without cracking or glazing the surface.

Union Carbide is using this facing on its own 52-story building, now going up in New York City. Similar black sheets were used previously for the walls of Atlas Steel's new building at Welland, Ont., Canada.

Black is the only marketed color for stainless so far (except for the procelanized coloring methods). But a range of gray shadings can be achieved by varying the size of the area covered by black finish.

Other colors—primarily golds and bronze—are now being developed for stainless.

• **What it costs**—Black stainless steel is expensive, compared with colored steel and aluminum, since stainless steel itself is more expensive than the other metals.

However, its high corrosion resistance, durability, good strength-weight ratio and attractive, natural tones have produced at least a limited use for stainless steel.

The cost of blackening with baked-on coating adds 40 to 50 cents per sq ft to the cost of natural stainless steel.

## 4. Glass

Glass is also being used in a variety of colors, both as windows and walls of buildings.

Where spandrels are covered with glass, it is usually colored glass, coated with enamel on the back. "Window-wall" buildings are frequently tinted green or gray—sometimes for better glare reduction and heat absorption,

# 39 STORY Luxury Apartment Building founded on CASE "Caisson Foundations"

Suitable bearing was reached after penetrating approximately 65 feet of saturated sands and soft glacial clays. Foundations were completed well ahead of schedule. Substructure PROBLEMS were minimized by Case Foundations.

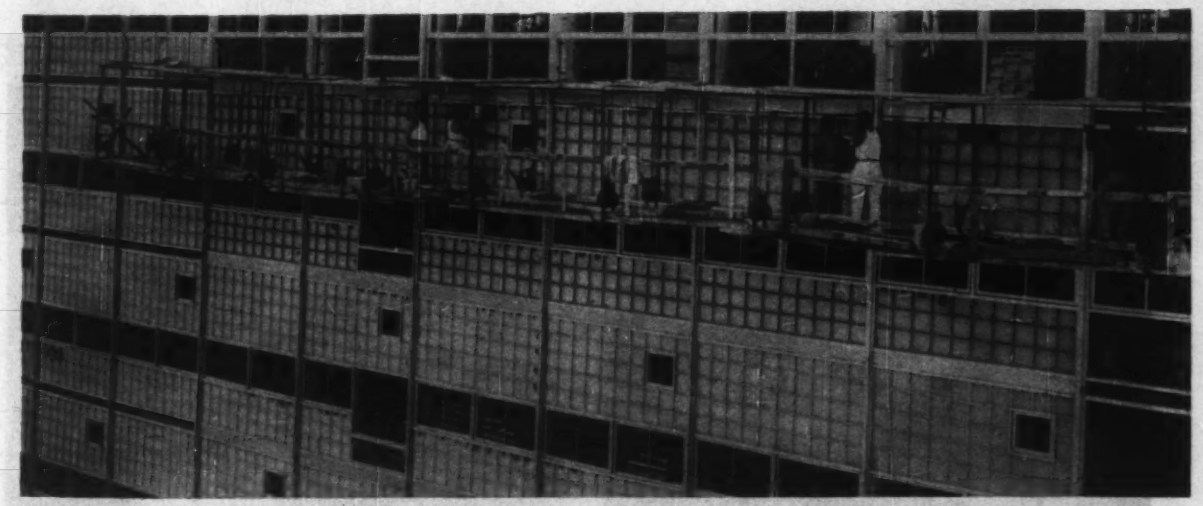
**ARCHITECTS and ENGINEERS:**
*Shaw, Metz & Dolio*
*Chicago*

**GENERAL CONTRACTOR:**
Crane Construction
Company Chicago

*Reading from left to right:*
**Mr. Morton J. Crane**
**Mr. Carl A. Metz**
**Mr. Stanford E. Case**

**CASE FOUNDATION COMPANY**

**CHICAGO • DETROIT • NEW YORK**



**Green-tinted glass blocks enclose this New York City school.**

but often for dramatic effect as well.

Structural glass block also comes in a variety of colors. A recent example of its use is the seven-story School of Printing in New York City (ENR Feb 6, p. 29). The exterior walls are green-tinted glass blocks, interrupted only by a 3-ft-wide horizontal strip of clear glass on each floor.

A prefabricated colored glass block wall has been developed by Owens-Illinois Glass Co. This lightweight system eliminates the need to mortar individual blocks in the field.

The panels are made of hollow glass units, 2 in. thick and 12 in. square. The panels come in 4 and 5-ft dimensions and interlock with one another.

The colored glass units are of two types: sprayed units that have good light transmission; and ceramic ones that are used just for decorative purposes.

Sprayed colors are applied to the inside surface of the outside half of the glass while it is still hot. Ceramic colors are fired on the outside face of the units.

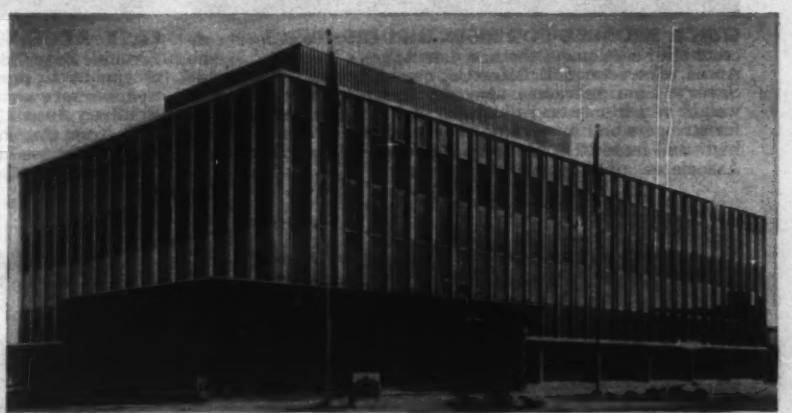
Glass block panels are now being installed primarily on industrial buildings and schools. They are, however, adaptable to tall building installations, the manufacturer claims.

• **What it costs**—Ceramic face glass units are more expensive than sprayed units because they require a double firing process. However, when bought in prefabricated panels—a 2-x4-ft panel of ceramic faced units cost only 25% more than a comparable sprayed unit.

Price of other glass and glass block varies widely depending on the installation.

## 5. Clay Products

The structural clay products industry has kept pace with the demand for



**Black stainless steel curtain wall clads Canadian building.**

color. Glazed brick, tile and ceramic veneer (architectural terra cotta) are produced in a pallet of colors.

Many glazed brick and tile buildings have been erected recently. Colored brick also can be used with colored metal curtain walls. The gold skyscraper, for example, has two walls of anodized aluminum and two of gold brick.

To obtain a glaze, structural clay is colored with a sprayed metallic oxide. Changes in the composition of the glaze are used to determine the color of the final product.

The glaze seals the brick against grime, smoke, acid and other impurities. Its color is permanent, doesn't fade and can be cleaned with soap and water, says the Structural Clay Products Institute.

The structural clay industry has also produced two offerings for the altar of prefabrication.

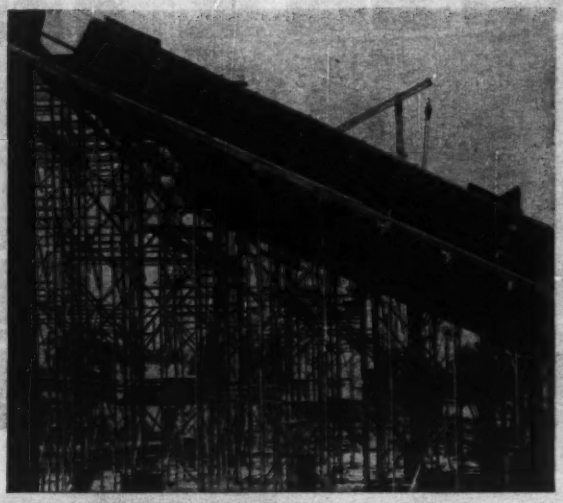
"CV Panelwall" answers the demand for a lightweight, prefabricated clay masonry panel. It is a 3-in.-thick, precast panel made of colored ceramic veneer with a lightweight aggregate concrete backup. It comes in sizes up to 30 sq ft and weighs about 30 lb per sq ft. A variety of finishes are available.

• The "SCR building panel" is a prefabricated panel made of brick, facing tile, or architectural terra cotta. It can be made in widths of from 12 to 24 in. And in any length up to 12 ft. It has a 2½ in. thickness. This panel is load bearing—differing from the CV Panelwall, which is nonload-bearing. It is produced in color.

• **What it costs**—The price of structural clay units depends on local conditions. However, the price of glazed brick is higher than face brick, chiefly because the application of glaze is an extra manufacturing process.

There is also an extra shipping cost. Glazed products are usually packaged in individual cardboard cartons to protect their surfaces.

In New York City a glazed brick wall would cost not more than 50 cents more per sq ft than an unglazed face brick wall. The additional cost per sq ft of ceramic veneer over unglazed face brick would be about $2.00.



**QUICK SHORING FOR RISER GIRDERS**—To support concrete riser sections of the new Los Angeles Memorial Sports Arena, contractor, L. E. Dixon Co., quickly assembles "Trouble Saver"® Shoring frames, spaced 5' apart, to meet slope and weight requirements. Adjustable legs provide exact heights for stringers and form work. Risers average 5" thick by 1'3" high, and treads 2½" thick by 2'8" wide. Welton Becket and Associates, architect.

**EASY ACCESS FOR GOLD DOME WORK** — Prefab "Trouble Saver" Sectional Steel Scaffolding components build up rapidly to provide easy access for materials and renovation workers on the State Capitol dome, Atlanta. Thomas Bradbury Assocs., architect. Thompson-Street Co., gen. contr. R. F. Knox Co., sheet metal contr. Local citizens contributed all the gold used on the new dome.

## *Scaffolding Methods . . .* by Patent Scaffolding Co.

**EXACT LEVELS PROVIDED** — "Gold Medal"® Junior Safety Swinging Scaffolds, hung from the roof give these men exact working levels needed for applying stainless steel facing units. Columbus and So. Ohio Electric Co. bldg. Universal Corp., panel contr.

**FAST SUPPORT FOR HIGHWAY BRIDGE** — Prefabricated "Trouble Saver" Shoring sections are simply fit together to form towers which are spaced apart to take the required load of the new Webb Hollow Road bridge section of the Empire Stateway, Onondaga Co., N. Y. Wm. F. Bouley Constr. Co., Inc., contractor. Complete, accurate, engineered shoring layouts, supplied by PS Co., provide the safest, most efficient and economical shoring for the job. Included are recommendations for joists, stringers and other necessary components.

Complete scaffolding equipment and engineering service offered through nation-wide sales offices or representatives. Look under Patent Scaffolding in the Yellow Pages for your nearest source.

**SALES** **RENTALS**

*FOR GREATER SAFETY...EFFICIENCY...ECONOMY*

**THE PATENT SCAFFOLDING CO., Inc.**

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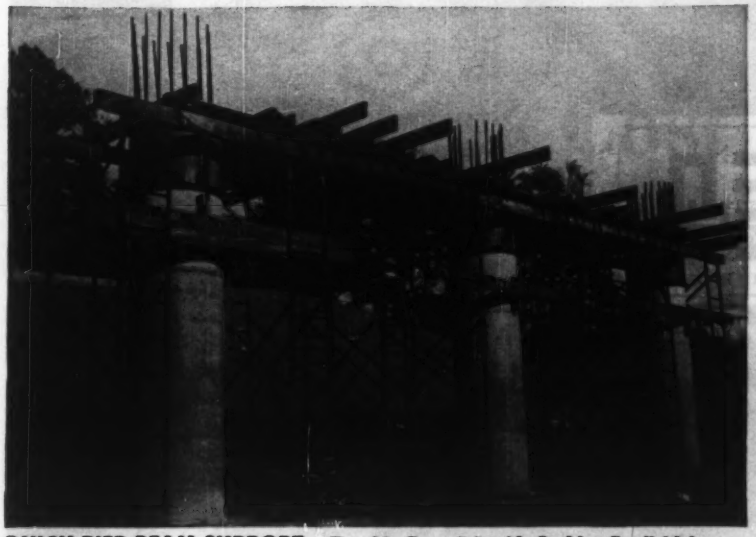
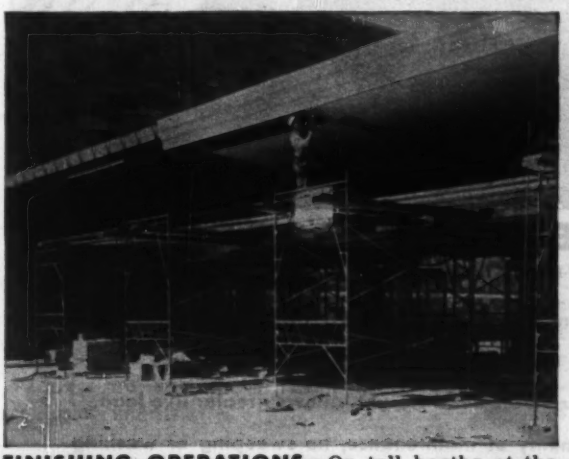


**QUICK PIER BEAM SUPPORT**—"Trouble Saver" 2'-wide Ladder Scaffold frames spaced 5' apart help contractor, M.D.A. Construction Co. provide easy access for forming work and support for one of 20 bridge piers on the Cross-Westchester Expressway, White Plains, N.Y. This photo shows forming and support for a pier beam 42" x 48" deep, 14' high. Many users of "Trouble Saver" Shoring say "its ease of handling means quicker job completion." Complete, accurate shoring layouts are a regular part of PS Co's engineering service available thru nation-wide offices or representatives that *sell* or *rent* "Gold Medal"® Scaffolds.

**CONFORMING TO CURVES**—Guy F. Atkinson Co., contractor, uses "Trouble Saver" Shoring to support Pacific Electric Ry. Co. concrete bridge, Los Angeles, over a sloped concrete channel base. Adjustable legs help meet both curves, top and bottom. Note 4" steel I-beams as stringers, furnished by PS Co.

# Shoring Methods . . . for Highway Construction by The Patent Scaffolding Co., Inc.



**FINISHING OPERATIONS**—On toll booths at the New Jersey Plaza for the New York—New Jersey Lincoln Tunnel these "Trouble Saver" fixed Scaffolds are used to provide safe, level platforms for finishing work. The scaffolding components used here are the same as those used for shoring operations. By assembling them in towers and spacing to take the load, practically any shoring job can be done.

**EASILY HANDLED BRIDGE SHORING**—5'-wide prefab "Trouble Saver" Sectional Steel Shoring frames are handled easily by the crew for T. M. Page and RCT Corp., joint venturers, to obtain the correct support for the Cajon Blvd. Bridge over Devil's Creek Diversion Channel, San Bernadino, Calif. Two 6'6"-high frames, with extension legs, give 14' height. 4" steel I-beams used as stringers. 3'7" spacing between frames.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

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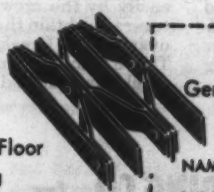

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*Fourth Quarterly Round up:*

# In This Cost Report . . .

- **Labor is the dominant theme in ENR's fourth quarterly cost roundup. Subjects covered: costs, wages, fringe benefits, compensation insurance, losses from job injuries, work stoppages.**
- **Over-all cost movements and prices are updated too, along with a forecast of what will happen to costs next year.**
- **Here's a summary of the major sections . . .**

## Outlook for Costs in '59

ENR forecasts that its Indexes of basic Construction and Building Costs will rise for the tenth consecutive year. Upward momentum is almost as great now as a year ago. **Page 39**

## Soaring Wages to Escalate Costs

Big increases in construction wage rates year after year have accounted for most of the rise in basic construction costs. The trend to long-term contracts providing for future wage raises helps perpetuate the long record of wage increases. **Page 40**

## ENR Construction Wage Roundup

Wage rates for 28 construction trades in 54 cities on November 1, 1958, are compiled by ENR. This record shows fringe benefits, overtime premiums. **Page 42**

## Gains in Wages, Earnings

ENR and the U. S. Bureau of Labor Statistics measure the gains construction workers have won in higher wages, higher earnings and a shorter workweek. Their earnings are much higher, rising faster than in manufacturing industries. **Page 44**

## Strikes Are Increasing Idle Time

The loss of man-days on construction jobs due to strike activity is on the increase. The larger number of major strikes in 1958 indicates that the 1956-57 uptrend continues. **Page 46**

## Work Injuries: Down, More Severe

Better safety programs on construction jobs cut the number of work injuries in 1957. But accidents tended to be more severe, resulting in more man-days lost per disabling injury. **Page 46**

## Compensation Insurance Rates

Compensation insurance rates are an important cost factor, adding to each $100 paid the construction worker. The November 1, 1958, rates for 49 states (including Alaska) are given. **Page 47**

## Building Cost and Price Indexes

Building contractors' selling prices are turning up because of the new push by higher costs of materials and labor. Contractor price indexes and weighted cost indexes are updated. **Page 48**

## Heavy Construction Indexes

Highway contractors in many states are bidding lower prices on new jobs than a year ago. Only two states report a rise in bid prices. Cost of irrigation and hydro projects are also down. **Page 52**

## Monthly Wage and Price Reports

This month's regular 20-cities reports on construction trade and equipment operator wages and prices of construction materials. **Pages 54, 56**

## School Prices Beat Cost Rise

Contractors' prices for new school construction in New York City this year are the lowest in two years. Prices of schools in New York State show little change during 1957 and 1958. **Pages 68, 75**

## Other Cost Features

**New Twist: Contractor Retains the Architect** **Page 59**
**How to Estimate Sewage Plant Costs Quickly** **Page 64**
**How Prices Dropped for Matching Schools** **Page 66**

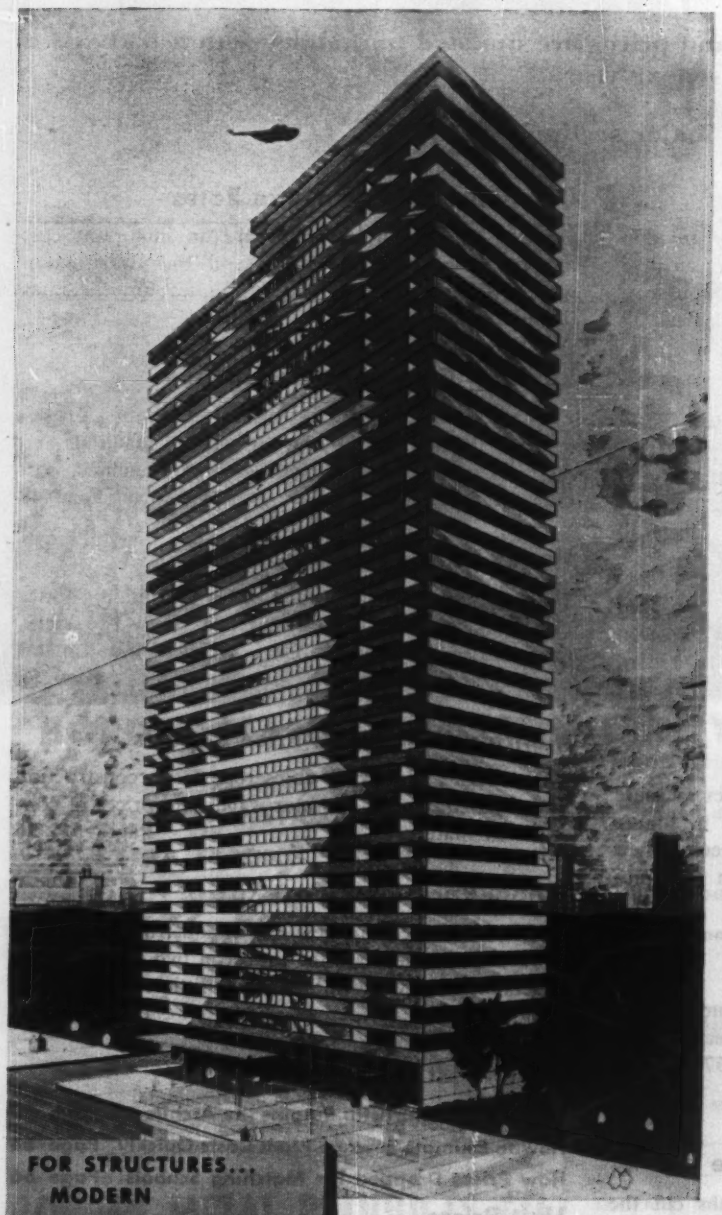
## Unit Prices

**Where the Building Dollar Goes** **Pages 76, 78**
**Other Unit Price Features** **Pages 85-95**

Exclusive "Executive House" in downtown Chicago...

# country's tallest concrete frame and floor building rises 40 stories in 371 feet!

WHEN AMERICA BUILDS FOR THE FUTURE...
IT BUILDS WITH CONCRETE



This impressive $6,000,000 building with its 446 apartments brings luxury living to Chicago's business district.

On the 100 ft. x 150 ft. lot, space was at a premium. To make the most of it, architects Milton M. Schwartz & Associates, Inc., and the Miller Engineering Company, both of Chicago, chose *concrete*. With it, apartments are big... ceilings a full eight feet. Yet floor to floor height is only 8 ft. 10½ in. Plaster is applied directly to the concrete.

And concrete saved money—an estimated $500,000. It saved time, made easier scheduling, too. Concrete's always ready on short order.

Executive House sets a U.S. height record for concrete. Today, for high-rise buildings and monumental structures, more and more architects and engineers are turning to concrete.

**Four concrete shear walls** extending across the width of the building provide necessary resistance to wind forces.

FOR STRUCTURES... MODERN **concrete**

**PORTLAND CEMENT ASSOCIATION**

*A national organization to improve and extend the uses of concrete*

Fourth Quarterly Round up:

# Cost Outlook: Up Again

Construction costs will rise to a new high in 1959 for the tenth consecutive annual increase.

**ENR forecasts a 4% rise in its 20-Cities Construction Cost Index** by December, 1959. That will raise the index to 805, based on 1913 = 100.

**ENR's Building Cost Index will rise 2.8%** to 550.

These forecasts are based on the following predictions for key construction materials and labor:

- **Structural steel will rise 3.6% to $5.70 per 100 lb at three mills**--Birmingham, Gary and Pittsburgh. The increase of $4 a ton is less than 1958's $4.50 hike.
- **Portland cement prices will hold steady in all but six of the ENR 20 cities.** Increases of 15 cents per bbl in these cities will raise the U. S. average 1.1% above the current level to $4 per bbl. The six cities where price increases are forecast are Baltimore, Boston, Minneapolis, New York, Philadelphia and Pittsburgh.
- **Lumber prices will probably soften** during the next six months, then turn upward in the second half of 1959. By next December, the U. S. average for Douglas fir 2x4's will be $114.50 per Mfbm (1,000 board ft), a slight 0.5% under the December 1958 average. The southern pine 2x4 average is forecast to be $101 per Mfbm, 1.4% under the current price.
- **Wage rates will rise another substantial notch in 1959.** Many unions in the 20 cities will negotiate new contracts and other unions will receive deferred wage increases provided by existing long-term contracts.

Common labor rates on building and heavy construction will reach $2.614 per hour, including fringe benefits by the end of next year. This is 5.3%, or 13.2 cents per hour, more than the current average.

Skilled wages--average of bricklayers, carpenters and structural ironworkers should rise 4%, or 15.2 cents to $3.916 per hour, by December 1959.

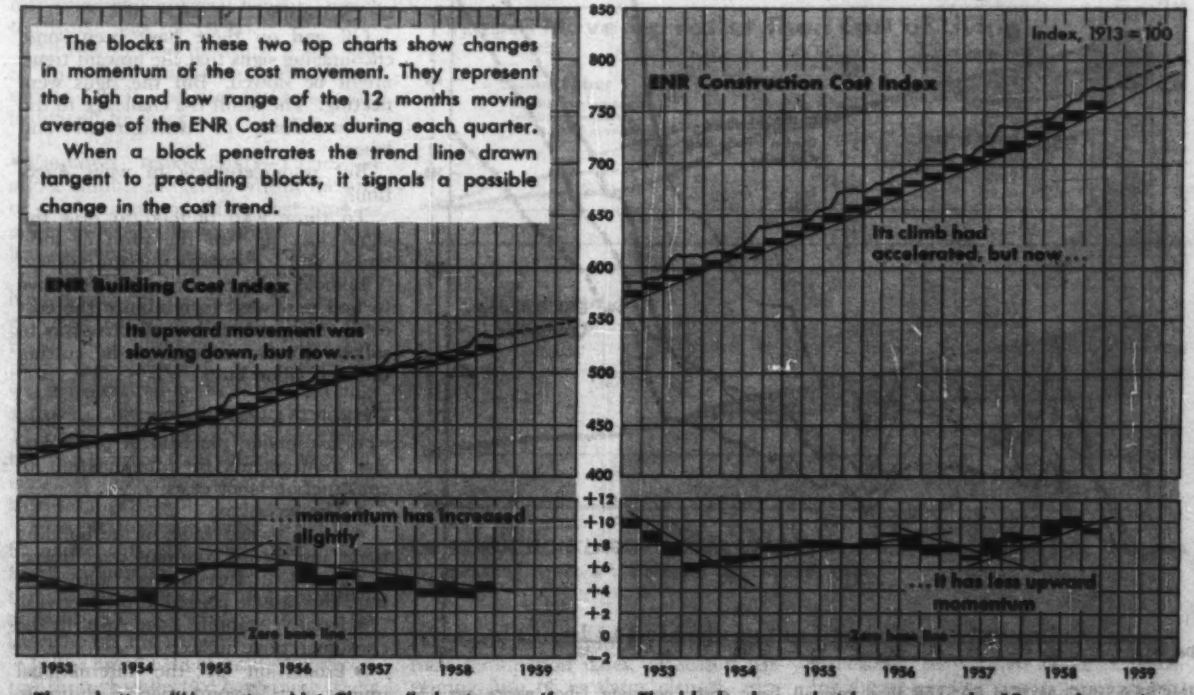
**Contractors will pay more for construction equipment,** rented or purchased in 1959 as compared with 1958. Most major equipment makers upped their prices during October-December of this year. Prices may again rise in the fall of 1959. Rental rates for equipment in 1959 will reflect the recent rise in prices of new machines.

**The cost of money borrowed to finance construction may go down early in 1959. But it will probably increase by summer.** Rather sharp swings in the cost of long-term borrowings are in prospect.

**Contractors profits will be squeezed again next year.** Higher costs of basic materials, labor and equipment will tend to push 1959 bid prices up. But stiffer contractor competition will produce tight bidding.

Selling prices will rise, but less than basic costs; certainly no turndown is in sight. The rugged competition for new work in the last two years trimmed contractor profit margins to marrow. The new year will require continued attention to cost control and good management.

## Upward Momentum Will Carry '59 Costs to a New High

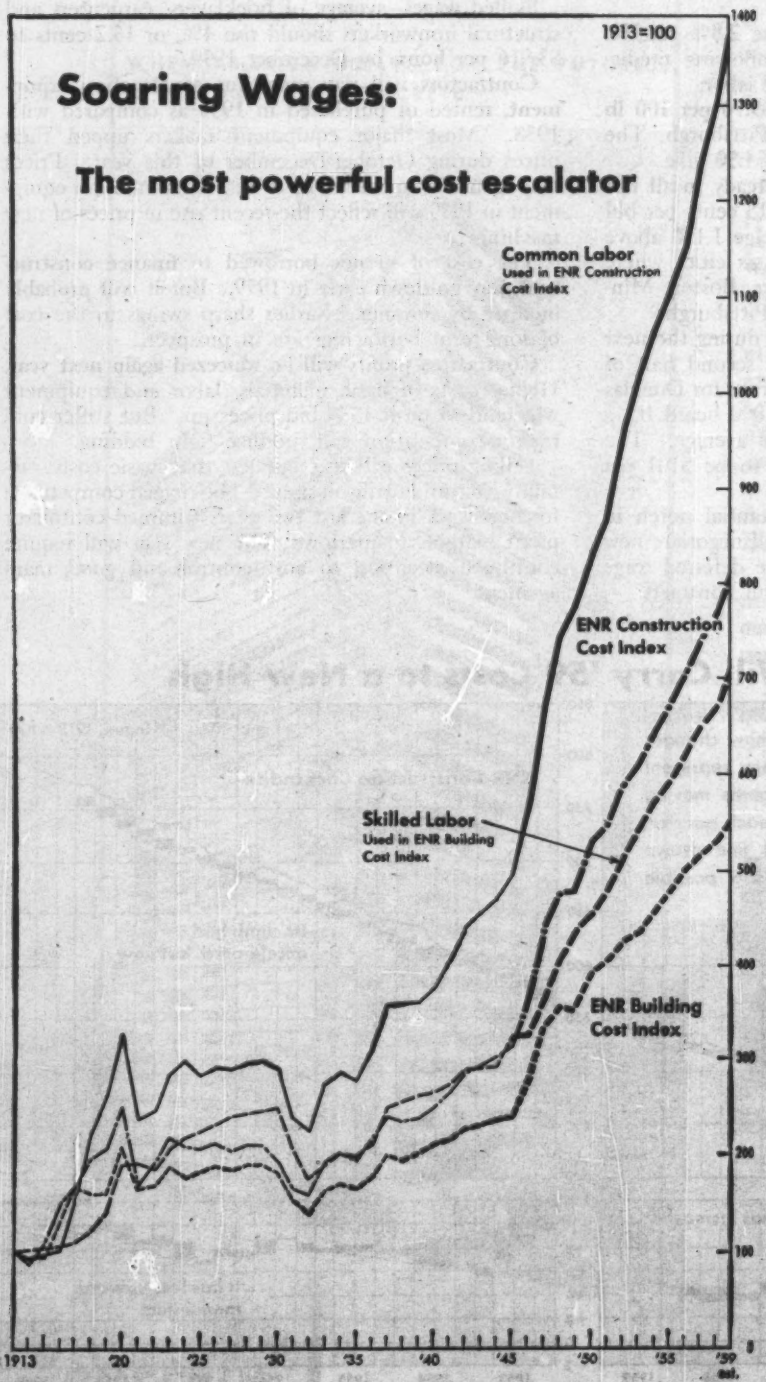



These bottom "Momentum Net Change" charts magnify further the short-run changes in the Cost Trend.

The blocks show what happens to the 12 months moving average during successive spans of three months.

Fourth Quarterly Round up:

# Why Labor Costs Will Keep




**INCREASING MUCH FASTER** than over-all basic costs, common labor wages are 13 times their 1913 average; skilled wages are 7 times as great.

Unrealistic are those who think the rising tide of construction labor costs can be appreciably stemmed in the foreseeable future.

Construction wage rates have risen steadily for 23 consecutive years. During this period, common labor rates in 20 U. S. cities reported by ENR have increased by 369%. Rates for skilled workers went up 293%. As a result, higher wages are responsible for most of the rise in ENR's Construction Cost and Building Cost Indexes.

Since 1913, for example, common labor rates have soared 1,200% while the Construction Cost Index, which uses common labor rates for its labor component, has increased 674%. At the same time, the ENR Building Cost Index, which uses skilled labor rates as the labor component, has advanced 435%. Skilled rates (bricklayers, carpenters, structural iron workers) have moved up 576%.

This year, the strength of the upward trend in wages was put to a better test than any since the war.

• **What happened?**—Despite a number of factors that tended to depress the demands of labor, the common labor rate in ENR's 20 cities rose 13.8 cents an hour, including fringes. The average rate for the three skilled trades went up 15.2 cents.

**Off and on there have been some encouraging signs that the upward trend might be slowed. But the signs were fleeting.** The result is a challenge to the resourcefulness of management and labor.

But resourcefulness in what direction?

To those who pretend to read the signs, resistance in the form of local strikes and lockouts is not the answer.

**It looks as if management will have to find new ways to minimize the cost of what it grants and an effective way to solicit labor's cooperation in cutting indirect labor costs.**

• **Hurdles ineffective**—This year there were five major, practical or psychological inducements to a moderation of construction labor costs:

- The recession.
- A call by the leader of the building trades union for a voluntary wage freeze.
- President Eisenhower's plea that wage increase be pegged to productivity.
- Relative stability since April in the consumer price index.
- Promotion by the international unions of a 10-point code to eliminate wasteful work practices.

# Going Up

There was also increasing union concern over the effect of rising construction labor costs on the craft union fight with industrial unions and the fear of some trades that high wage scales will invite use of substitute materials with resulting loss of jobs.

None of these, which represented top level thinking, made much impression on labor at the local level. It's a long way from the top to the bottom. Local autonomy is deeply imbedded. And the old adage, "You can lead a horse to water but you can't make him drink," promises to retain its verity for some time to come.

• **Upward pressures**—On the other side of the coin are a number of strong upward pressures that are here to stay.

Although the relative prosperity of the construction industry cannot be overlooked, the most significant factor is the basic philosophy of trade unionism. Unions stake their success on the economic and social progress of their members.

Labor's ever-present economic goal is a larger share of the economic pie for the workers. It believes that consumer purchasing power must be constantly swelled by higher wages to support an expanding economy. Success is measured in terms of a constant increase in real wages and in social benefits, which the fringe area represents.

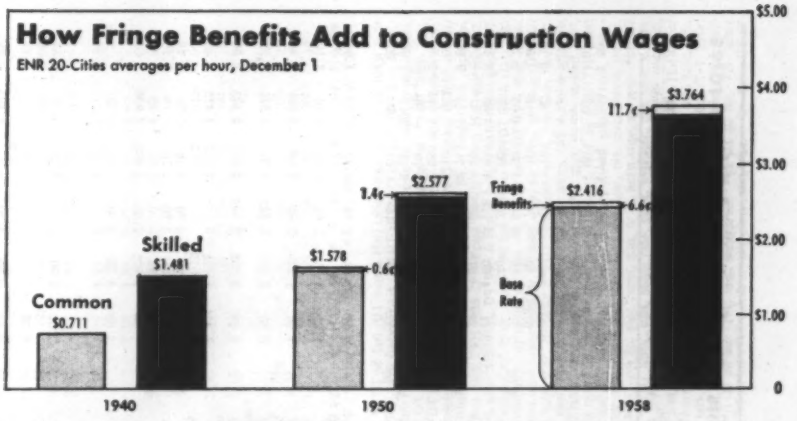
All this in labor parlance is the road to first-class citizenship for wage earners. It is a sign of the times, and is difficult to check.

• **Employer responsibility**—There are also a number of factors within the area of employer responsibility that promise either to fortify the upward trend or to leave it relatively uncontrolled.

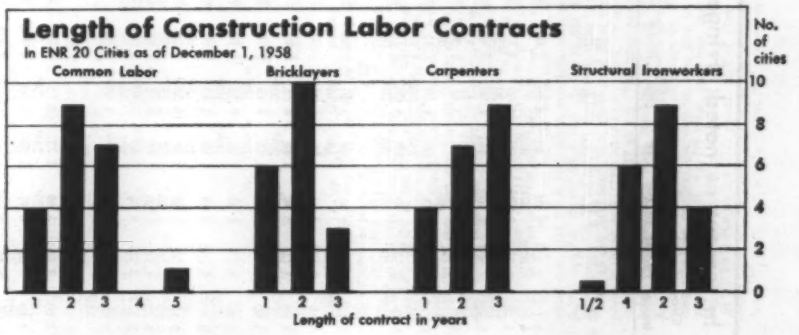
Long-term contracts, for example, have a snowballing effect. While they generally result in smaller annual pay boosts than short-term contracts produce, they inevitably set a floor for wages negotiated in the future. Average automatic increase this year was about 14 cents. The AFL-CIO says one of the three factors in setting wage demands is "how much workers elsewhere have been getting."

Current practice with respect to fringe benefits also makes the upward trend automatic. Employer contributions in many cases are still a percentage of basic rates. Every increase in the latter boosts the former.

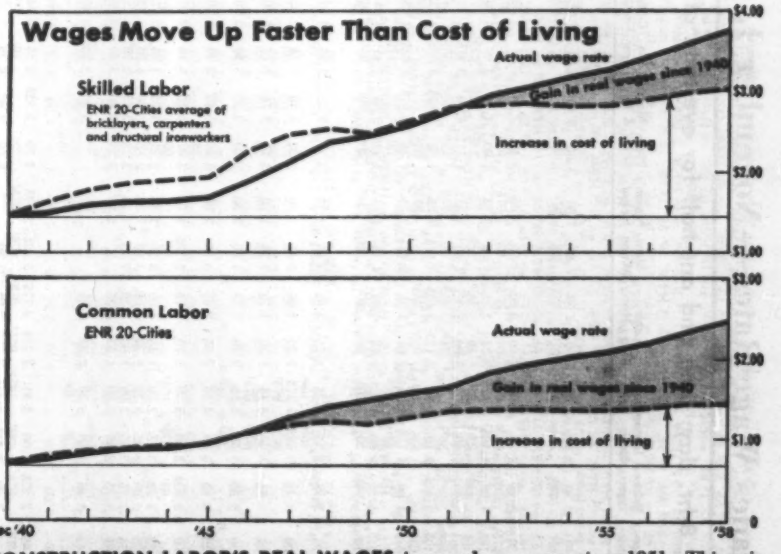
In the broad field of indirect-cost control through collective bargaining, there are only slight or isolated indications of any significant trends in uniform contract termination dates, off-season bargaining, use of escalator clauses, area-wide or group bargaining, accident prevention, jurisdictional disputes or trade association cooperation between building, heavy and highway contractors and homebuilders.




**FRINGE BENEFITS HAVE ADDED** more than five cents to basic wage rates for common labor and more than ten cents to skilled wages since 1950.




**LONG-TERM CONTRACTS** are most common for construction trades in major cities. They provide automatic future wage increases during the contract period.




**CONSTRUCTION LABOR'S REAL WAGES** increased every year since 1951. This gain in purchasing power is the greatest for common labor.

# Building Trades Wage Rates—November 1, 1958

**Quoted in $/hr., 8-hr. day; time and one-half for overtime after 40 hr. except as noted. Fringe benefits are shown under base rates**

| | Carpenter | Bricklayer | Ironworker Struc | Ironworker Reinf | Labor Bldg | Labor Heavy | Stone Mason | Mason's Helper | Plasterer | Mosaic & Terr | Tile Layer | Cement Finisher | Lather | Electrn Inside | Painter | Glazier | Plumber | Steamfitter | Roofer | Waterproofer | Sheet Metal Wkr | Welder | Truck Dr 1½T+ | Shovel Oper | Tractor Oper 30hp+ | Hoist Engr 1-Dr | Air Compr | Air Tool |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NEW ENGLAND** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mass, Boston | b 3.40 | 3.80 | 3.90 | 3.90 | 2.60 | 2.50 | 3.80 | 2.60 | 3.65 | 3.65 | 3.65 | 3.84 | 3.80 | 3.70 | 3.10 | 3.10 | 3.70 | 3.75 | 3.40 | 3.40 | 3.50 | 3.90 | 2.45 | 3.775 | 3.40 | 3.775 | 3.325 | 2.60 |
| | .10[1] | .30[1] | .20[3] | .20[3] | .07[1] | .07[1] | .20[1] | .07[1] | .35[3] | .... | .... | .10[1] | .20[4] | .12[9] | .15[1] | .06[1] | .32[6] | .10[1] | .25[7] | .25[7] | .16[6] | .20[3] | .... | .10[1] | .10[1] | .10[1] | .10[1] | .10[1] | .07[1] |
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| Md, Baltimore | c 3.20 | 3.95 | 3.90 | 3.90 | 2.00 | 2.00 | 3.95 | 2.05 | 3.45 | 3.34 | 3.34 | 3.25 | 3.45 | 3.425 | 2.825 | 3.10 | 3.40 | 3.30 | 3.00 | 3.00 | 3.40 | * | 2.00 | 3.80 | 3.40 | 3.10 | 2.85 | 2.10 |
| | .075[1] | .10[1] | .075[1] | .075[1] | .075[1] | .075[1] | .10[1] | .075[1] | .075[1] | .075[1] | .075[1] | .075[1] | .075[1] | .075[1] | .075[1] | .07[1] | .075[1] | .075[1] | .... | .... | .08[1] | .... | .075[9] | .10[1] | .10[1] | .10[1] | .10[1] | .075[1] |
| N J, Trenton | d 3.725 | 4.00 | 4.425 | 4.425 | 2.75 | 2.85 | 4.00 | 2.85 | 4.00 | 4.00 | 4.00 | 4.00 | 3.50 | 4.35 | 3.35 | 3.425 | 4.00 | 4.00 | 3.75 | 3.75 | 3.95 | 4.05 | 2.61 | 4.55 | 3.58 | 4.30 | 4.05 | 2.75 |
| | .10[1] | .125[1] | .23[11] | .23[11] | .10 | .25[10] | .125[1] | | .125[1] | .125[1] | .125[1] | .125[1] | | .10[12] | | | .30[13] | .30[13] | .25[7] | .25[7] | .25[7] | | | .30[12] | .30[12] | .30[12] | .30[12] | |
| N Y, New York | e 4.10‡ | 4.48‡ | 4.30 | .... | 3.00 | 3.00 | 4.00 | 3.35‡ | 4.35‡ | 4.10 | 3.875 | 4.20‡ | 4.20‡ | 3.90‡ | 3.36‡ | 4.10‡ | 4.25‡ | 4.30‡ | 3.85‡ | 3.85‡ | 4.10‡ | * | 2.21 | 4.60 | 3.725 | 4.35 | 3.85 | 3.45 |
| | .33[26] | .38[26] | .36[27] | | .24[25] | .24[25] | .28[1] | .27[26] | .52[43] | .33[41] | .35[41,42] | .34[25] | .34[41] | .43[44] | .34[45] | .43[39,41] | .65[46] | .47[47] | .41[38,40] | .41[38,40] | .52[48] | | .23[49] | .37[25] | .30[25] | .35[25] | .31[25] | .27[25] |
| Pa, Harrisburg | f 3.105 | 3.625 | 4.10 | 3.90 | 2.125 | 2.125 | 3.625 | 2.25 | 3.25 | 3.625 | 3.625 | 3.225 | 3.25 | 3.375 | 2.60 | 2.52 | 3.45 | 3.45 | 2.90 | 2.60 | 3.75 | 4.10 | 2.175 | 3.985 | 3.31 | 3.715 | 2.25 | 2.25 |
| | .035[1] | | .23[1] | .23[1] | .035[1] | .035[1] | | .035[1] | .035[1] | | | .035[1] | .035[1] | .034[1] | | .06[1] | | | .035[1] | .035[1] | .10[1] | .23[1] | .035[1] | .10[1] | .10[1] | .10[1] | .035[1] | .035[1] |
| Pa, Philadelphia | 3.635 | 4.00 | 4.175 | 4.05 | 2.65 | 2.35 | 3.625[14] | 2.35 | 4.05 | 3.675 | 3.625 | 3.625 | 3.925 | 4.075 | 3.175 | 3.35 | 4.00 | 4.10 | 3.45 | 3.45 | 3.935 | .... | 2.45 | 2.595[22] | 2.595 | 2.595 | 2.595 | 2.35 |
| | | .17[1] | .23[14] | .23[15] | | | | | .15[1] | | .125[1] | | .125[1] | .06[16] | .125[1] | .... [17] | .265[1] | .165[1] | .225[16] | .225[16] | .20[2] | | .155[19] | .10[1] | .10[1] | .10[1] | .10[1] | .... |
| Pa, Pittsburgh | g 3.675 | 4.15 | 4.00 | 3.825 | 2.45 | 2.30 | 4.15 | 1.83 | 3.825 | 3.85 | 3.45 | 3.65 | 3.825 | 4.35 | 3.45 | 3.50 | 4.00 | 4.00 | 3.475 | 3.475 | 3.975 | 2.86 | 2.37 | 3.64 | 3.44 | 3.15 | 3.15 | 2.30 |
| | .10[1] | .20[3] | .20[3] | .20[3] | .20[3] | .20[3] | .20[3] | .30[13] | .20[3] | .20[3] | .075[1] | .30[13] | .20[3] | .325[1] | .10[1] | .10[1] | .20[3] | .20[3] | .075[1] | .075[1] | .10[1] | .20[3] | .20[3] | .10[1] | .10[1] | .10[1] | .10[1] | .20[3] |
| **SOUTH** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ala, Birmingham | h 2.95 | 3.85 | 3.35 | 3.35 | 1.75 | 1.85 | 3.85 | 1.75 | 3.17 | 3.35 | 3.35 | 3.03 | 2.95 | 3.425 | 3.00 | 2.85 | 3.40 | 3.40 | 2.65 | 2.65 | 3.30 | * | 2.02 | 2.93 | 2.79 | 2.77 | 2.52 | 1.90 |
| | | | .10[20] | .10[20] | | | | | | | | | | .036[21] | | | .10[20] | .10[20] | .013[22] | .013[22] | .075[1] | | | | | | | |
| Fla, Jacksonville | ll 3.00 | 3.45 | 3.325 | 3.175 | 1.20 | 1.00 | 3.45 | 1.30 | 3.20 | 3.15 | 3.15 | 2.62 | 3.20 | 3.65 | 2.725 | 2.80 | 3.50 | 3.50 | 2.85 | 2.85 | 3.15 | * | 1.25 | 3.15 | 2.65 | 2.95 | 2.10 | 2.10 |
| | | | .075[1] | .075[1] | | | | | | | | | | .037[160] | | | .10[1] | .10[1] | | | | | | | | | | |
| Ga, Atlanta | l 3.05 | 3.75 | 3.30 | 3.15 | 1.70 | 1.70 | 3.75 | 1.70 | 3.25 | 3.75 | 3.75 | 3.00 | 3.25 | 3.60 | 3.15 | 2.90 | 3.45 | 3.35 | 2.40 | 2.40 | 3.35 | 3.35 | 1.70 | 3.375 | 2.85 | 3.225 | 2.625 | 1.82 |
| | | | .075[1] | .075[1] | | | | | | | | | | | | | .20[23] | .20[23] | | | .01[24] | .01[24] | | | | | | |
| Ky, Frankfort | j 2.90 | 3.50 | 3.55 | 3.55 | 2.10 | 2.15 | 3.50 | 2.50 | 3.00 | 3.50 | 3.50 | 2.90 | 3.25 | 3.60 | 2.45 | 2.60 | 4.15 | 4.15 | 2.70 | 2.70 | 4.225 | .... | 2.30 | 3.375 | 2.525 | 3.375 | 2.525 | 2.525 |
| | .27 | | .11[26,28] | .11[26,28] | .38 | .38 | .38 | | | | | | | | | .27 | .10[25,29] | .10[25,29] | | | .075[25,1] | | | | | | | |
| Ky, Louisville | 3.40 | 3.85 | 3.55 | 3.55 | 2.35 | 2.35 | 3.85 | 2.00 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.55 | 3.15 | 2.93 | 3.55 | 3.55 | 2.70 | 2.70 | 3.525 | * | 2.88[C] | 3.375 | 3.375 | 2.87 | 2.875 | 2.55 |
| | | | | | | | | | .05[30] | | | | | .075[1] | | | .10[29] | .10[29] | | | .15[31] | | | | | | | |
| La, New Orleans | k 3.00 | 3.525 | 3.30 | 3.30 | 1.75 | 1.75 | 3.525 | 1.75 | 3.07 | 3.10 | 3.10 | 2.975 | 3.075 | 3.475 | 2.625 | 2.85 | 3.40 | 3.40 | 2.92 | 3.525 | 3.00 | .... | 2.475 | 3.125 | .... | 3.125 | 2.475 | 1.85 |
| | | .05[1] | .075[1] | .075[1] | | | .05[1] | | .05[1] | | | | .08[23] | .165[23] | | | .15[1] | .15[1] | .075[1] | .05[1] | .075[1] | | .075[1] | .075[1] | | .075[1] | .075[1] | |
| Miss, Jackson | 2.75 | 3.25 | 3.15 | 2.90 | 1.45 | 1.00 | 3.25 | 1.55 | 2.875 | 3.25 | 3.25 | 2.75 | 2.875 | 3.15 | 2.50 | 1.50 | 3.30 | 3.30 | 2.20 | 2.20 | 3.05 | 2.15 | 1.85 | 2.95 | 2.70 | 2.70 | 2.70 | 2.15 |
| Miss, Meridian | 2.75 | 3.00 | 3.25 | 3.25 | 1.20 | 1.00 | 3.00 | 1.30 | 2.85 | 3.00 | 3.00 | 2.75 | 1.75 | 3.05 | 2.50 | 2.25 | 3.25 | 3.25 | 2.20 | 2.20 | 3.05 | .... | 1.00 | 2.95 | 2.70 | 2.70 | 2.15 | 1.25 |
| N C, Raleigh | 1.75 | 2.75 | 2.75 | 2.00 | 1.00 | 1.25 | 2.75 | 1.25 | 2.75 | 2.75 | 2.75 | 1.75 | 1.75 | 2.625 | 1.85 | 1.50 | 2.75 | 2.75 | 1.85 | 1.75 | 1.85 | 2.25 | 2.00 | 2.25 | .... | .... | 1.25 | 1.25 |
| Tenn, Nashville | l 2.95 | 3.75 | 2.90 | 2.90 | 1.55 | 1.55 | .... | 1.60 | 3.25 | 3.40 | 3.40 | 2.65 | 3.12 | 3.175 | 3.25 | 2.65 | 3.40 | 3.40 | 2.60 | 2.60 | 3.10 | .... | 1.80 | 2.875 | 2.30 | 2.425 | 2.025 | 2.30 |
| | | | | | | | | | | | | | | .075[1] | | | .10[1] | .10[1] | | | | | | | | | | |
| W Va, Charleston | 3.425 | 3.85 | 3.50 | 3.50 | 2.35 | 2.35 | .... | .... | .... | 3.35 | 3.35 | 3.40 | 3.375 | 3.425 | 2.875 | 2.98 | 3.50[D] | 3.50[D] | 3.25 | .... | 3.50 | .... | 2.60 | 3.35 | 2.80 | 3.00 | 2.25 | .... |
| | .... | .... | .10[1] | .10[1] | .... | .... | .... | .... | .... | .... | .... | .... | .... | .115[24] | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| **MIDDLE WEST** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ill, Chicago | m 3.65 | 3.875 | 4.00 | 3.91 | 2.775 | 2.775 | 3.825 | 2.775 | 3.70 | 3.825 | 3.65 | 3.65 | 3.705 | 3.90 | 3.50 | 3.89 | 3.73 | 3.75 | 3.96 | 3.96 | 3.75 | 3.75 | 2.36 | 3.90 | 3.45 | 3.55 | 3.10 | 3.55 |
| | .20[3] | .075[1] | .16[33] | .195[31] | .075[1] | .075[1] | .075[1] | .075[1] | .23[1] | .... | .10[1] | .20[3] | .225[1] | .12[1] | .25[7] | .20[3] | .24[32] | .22[32] | .13[1] | .13[1] | .225[34] | .22[32] | .15[1] | .05[1] | .05[1] | .05[1] | .05[1] | .05[1] |
| Ind, Indianapolis | n 3.00 | 3.80 | 3.475 | 3.475 | 2.375 | 2.05 | 3.80 | .... | 3.60 | 3.65 | 3.55 | 3.275 | 3.50 | 3.65 | 3.30 | 3.41 | 3.60 | 3.60 | 2.925 | 2.925 | 3.48 | .... | 2.50 | .... | .... | 3.53 | .... | .... |
| | .075[1] | .... | .075[1] | .075[1] | .075[1] | .075[1] | .... | | .... | .... | .... | .... | .... | .077[35] | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .075[1] | .... | .... |
| Mich, Detroit | o 3.40 | 3.77 | 3.75 | 3.52 | 2.65 | 2.80 | 3.77 | 2.73 | 2.66 | 3.70 | 3.00 | 3.17 | 3.55 | 3.80 | 3.25 | 3.17 | 3.735 | 3.735 | 3.49 | 3.17 | 3.57 | 3.75 | 2.80 | 3.50 | 3.50 | 3.47 | 3.195 | 2.78 |
| | .40[33] | .20[27] | .225[49] | .10[1] | .33[36] | .10[1] | .20[27] | .33[36] | .34[40] | .10[1] | .16[41] | .35[44] | .43[36] | .36[40] | .30[34] | | .165[46] | .14[46] | .225[47] | .35[46] | .40[48] | .225[50] | .10[1] | .10[1] | .10[1] | .25[70] | .10[1] | .25[71] |
| Ohio, Cincinnati | p 3.575 | 3.85 | 3.60 | 3.45 | 2.625 | 2.525 | 3.85 | .... | 3.625 | 3.55 | 3.55 | 3.425[5] | 3.575 | 3.82 | 3.05 | 3.50 | 3.725 | 3.80 | 3.45 | 3.45 | 3.68 | .... | 2.45 | 3.60 | 2.97 | 3.375 | 3.60 | 3.60 |
| | | | .10[1] | .10[1] | | | | | | | | | .06[1] | .047[5] | | | .165[1] | .095[72] | | | | | .023[1] | | | | | |
| Ohio, Cleveland | q 3.83 | 3.805 | 3.73 | 3.73 | 3.09 | 3.005 | 3.835 | 3.09 | 3.83 | 3.655 | 3.655 | 3.83 | 3.83 | 3.95 | 3.505 | 3.58 | 3.78 | 3.64 | 3.83 | 3.715 | 3.755 | 3.73 | 2.75 | 3.83 | 3.58 | 3.705[37] | 3.455 | 3.455 |
| | | .10[1] | .10[1] | .10[1] | | | | | | | | | | | .15[8] | .25[74] | .10[1] | .19[75] | | .125[1] | .075[50] | .10[1] | .10[1] | | | | | |
| Ohio, Columbus | r 3.40 | 3.90 | 3.60 | 3.60 | 2.70 | 2.50 | 3.55 | 2.70 | 3.50 | 3.325 | 3.325 | 3.25 | 3.50 | 3.60 | 3.10 | 2.90 | 3.55 | 3.55 | 3.425 | 3.60 | 3.50 | 3.60 | 2.425 | 3.60 | 3.375 | 3.60 | 3.225 | 2.975 |
| | .01[24] | .01[24] | .085[76] | .085[76] | | | | | .04[77] | | | | .04[77] | | | | .05[1] | .05[1] | .075[1] | .075[1] | .10[15] | .085[76] | | | | | | |
| Ohio, Dayton | 3.45 | 3.84 | 3.65 | 3.575 | 2.52 | 2.52 | 3.84 | 2.79 | 3.55 | .... | .... | 3.22 | 3.55 | 3.85 | 3.25 | 3.13 | 3.65 | 3.65 | 3.21 | 3.21 | 3.425 | .... | 2.67 | 3.10[G] | 3.10[G] | 3.10[G] | 3.10[G] | 3.10[G] |
| | .... | .... | .10[1] | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .10[1] | .10[1] | .12[1] | .12[1] | .075[1] | .... | | | | | | |
| Ohio, Toledo | e 3.72 | 3.83 | 3.72 | 3.69 | 2.84 | 2.78 | 3.83 | 2.97 | 3.72 | 3.65 | 3.83 | 3.72 | 3.72 | 3.80 | 3.39 | 3.20 | 3.75 | 3.75 | 3.56 | 3.56 | 3.56 | * | 2.625 | 3.72 | 3.44 | 3.58 | 3.305 | 2.995 |
| | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .112[90] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | .07[1] | | | | | | | |
| Wis, Milwaukee | 3.40 | 3.65 | 3.47 | 3.47 | 2.62 | 2.62 | 3.65 | 2.73 | 3.41 | 3.56 | 3.38 | 3.31 | 3.41 | 3.42 | 3.15 | 3.20 | 3.51 | 3.51 | 3.20 | 3.20 | 3.35 | 3.47 | 2.50 | 3.565 | 3.40 | 3.235 | 2.96 | 2.84 |
| | .14[78] | .14[78] | .07[1] | .07[1] | .14[78] | .14[78] | .14[78] | .14[78] | .14[78] | .152[79] | .158[80] | .07[1] | .14[78] | .27[81] | .14[78] | .09[28] | .14[78] | .14[78] | .15[103] | .15[103] | .14[48] | .07[1] | .... [64] | .07[1] | .07[1] | .07[1] | .07[1] | .14[78] |
| **WEST OF MISSISSIPPI** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Colo, Denver | t 3.34 | 3.75 | 3.175 | 3.26 | 2.17 | 2.17 | 3.75 | 2.50 | 3.475 | 3.55 | 3.55 | 3.34 | 3.475 | 3.60 | 3.075 | 2.95 | 3.65 | 3.65 | 3.20 | 3.075 | 3.65 | * | 2.30 | 3.05 | 2.90 | 2.90 | 2.90 | 2.45 |
| | | | .075[1] | .075[1] | | | | | .125[55] | | | | .075[1] | .14[48] | | | .10[1] | .10[1] | .10[1] | .... | | | | | | | | |
| Iowa, Des Moines | u 3.25 | 3.925 | 3.30 | 3.30 | 2.50 | 2.50 | 3.925 | 2.50 | 3.375 | 3.25 | 3.25 | 3.30 | 3.30 | 3.575 | 3.25 | 2.85 | 3.55 | 3.55 | 2.77 | .... | 3.25 | * | 2.65 | 3.375 | 3.375 | 3.15 | 2.60 | 2.70 |
| | | | .075[1] | .075[1] | | | | | | | | | | .15[21] | | | .215[97] | .215[97] | | | .15[21] | | | | | | | |
| Kans, Topeka | v 3.00 | 3.73 | 3.40 | 3.25 | 2.10 | .... | 3.73 | 2.325 | 3.375 | 3.75 | 3.125 | 3.10 | 3.125 | 3.35 | 2.85 | 2.85 | 3.50 | 3.50 | 2.775 | 2.775 | .... | * | 2.375 | 3.45 | .... | 3.05 | .... | .... |
| Minn, Duluth | w 2.96 | 3.51 | 3.41 | 3.16 | 2.31 | 2.31 | 3.51 | 2.41 | 3.35 | 3.30 | 2.92 | 2.96 | 3.25 | 3.33 | 2.95 | 2.71 | 3.33 | 3.33 | 2.95 | .... | 3.125 | * | 2.43 | 3.43 | 3.21 | 3.21 | 2.88 | 2.41 |
| | .075[1] | .... | .... | .... | .075[1] | .075[1] | .... | .075[1] | .075[1] | .... | .... | .... | .075[1] | .20[89] | .075[1] | .21[82] | .14[91] | .14[91] | .075[1] | .... | .175[92] | .... | .075[1] | .... | .... | .... | .... | .075[1] |
| Minn, Minneapolis | x 3.30 | 3.725 | 3.47 | 3.37 | 2.55 | 2.55 | 3.725 | 2.65 | 3.40 | 3.30 | 3.12 | 3.40 | 3.40 | 3.38 | 3.15 | 3.00 | 3.42 | 3.42 | 3.30 | 3.30 | 3.275 | * | 2.55 | 3.37 | 2.93 | 3.30 | 2.82[M] | 2.70 |
| | | | | | | | | | .23[93] | .08[97] | .227[97] | | | .37[93] | | .033[96] | .20[94] | .20[94] | | | .225[54] | | | | | | | |
| Minn, St. Paul | x 3.30 | 3.725 | 3.47 | 3.37 | 2.55 | 2.55 | 3.725 | 2.65 | 3.40 | 3.30 | 3.12 | 3.40 | 3.25 | 3.38 | 3.15 | 3.00 | 3.42 | 3.42 | 3.30 | 3.30 | 3.15 | * | 2.55 | 3.37 | 2.93 | 3.30 | 2.82[M] | 2.70 |
| | .... | .... | .... | .... | .... | .... | .... | .... | .23[93] | .08 | .227[97] | .... | .33[93] | .37[93] | .... | .033[96] | .20[94] | .20[94] | .... | .... | .40[122] | .... | .... | .... | .... | .... | .... | .... |

# Building Trades Wage Rates—*continued*

| | Carpenter | Bricklayer | Ironworker Struc | Ironworker Reinf | Laborer Bldg | Laborer Heavy | Stone Mason | Mason's Helper | Plasterer | Mosaic & Terr | Tile Layer | Cement Finisher | Lather | Electrn Inside | Painter | Glazier | Plumber | Steamfitter | Roofer | Waterproofer | Sheet Metal Wkr | Welder | Truck Dr 1½T+ | Shovel Oper | Tractor Oper 30hp+ | Hoist Engr 1-Dr | Air Compr | Air Tool |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mo, Kansas City** | y 3.325 | 3.85 | 3.40 | 3.345 | 2.355 | 2.405 | 3.55 | 2.55 | 3.625 | 3.575 .125[1] | 3.575 .125[1] | 3.325 | 3.375 | 3.60 .276[99] | 3.25 | 3.42 | 3.60 .09[100] | 3.40 .09[100] | 3.03 | 3.03 | 3.55 .085[76] | * | 2.33 | 3.345 | 3.10 | 3.10 | 3.10 | 2.45 |
| **Mo, St. Louis** | 3.575 .10[1] | 3.90 .315[101] | 3.60 .075[1] | 3.60 .075[1] | 2.625 .10[1] | 2.625 .10[1] | 3.90 .315[101] | 3.00 .10[1] | 3.80 .075[1] | 3.77 .10[102] | 3.525 .251[103] | 3.875 .10[104] | 3.80 .075[1] | 3.955 .298[105] | 3.555 .253[105] | 3.95 .10[1] | 3.85 .325[106] | 3.925 .275[107] | 3.50 .15[108] | 3.875 .10[104] | 3.71 .333[109] .075[110] | 3.125 | 2.725 | 3.675 | 3.675 | 3.125 | 3.125 | 3.125 |
| **Mont, Billings** | z 2.95 | 3.50 | 3.455 | 3.455 | 2.33 | 2.33 | 3.50 | 2.33 | 3.275 | 3.50 | 3.50 | 2.33 | 3.00 | 3.25 .033[111] | 2.60 | 2.74 | 3.30 | 3.30 | 2.80 | 2.80 | 3.075 .10[1] | 3.30 | 2.38 | 2.975 | 2.975 | 2.755 | 2.525 | 2.58 |
| **Nebr, Omaha** | aa 3.25 | 3.70 | 3.35 | 3.35 | 2.275 | 2.15 | 3.70 | 2.35 | 3.50 | 3.15 | 3.15 | 3.175 | 3.50 | 3.65 | 2.85 | 2.90 | 3.50 .075[112] | 3.50 .115[112] | 2.575 | 2.575 | 3.10 .075[85] | * | 2.15 | 3.25 | 2.90 | 2.90 | 2.70 | 2.70 |
| **N D, Bismarck** | 2.40 | 3.25 | 3.32 | 3.32 | 1.63 | 1.63 | 3.25 | 1.88 | 2.75 | .... | 3.00 | 2.40 | 2.75 | 2.70 | 2.30 | 2.30 | 2.75 | 2.75 | 2.40 | 2.40 | 2.25 | * | 1.75 | 2.60 | 2.30 | 2.47 | 1.75 | 1.75 |
| **Okla, Oklahoma City** | bb 3.00 | 3.80 | 3.05 | 3.05 | 2.05 | 1.90 | 3.80 | 2.15 | 3.50 | 3.00 | 3.00 | 3.10 | 3.50 | 3.40 | 2.80 | 2.75 | 3.50 | 3.50 | 2.75 | 2.75 | 3.15 | 2.75 | 2.25 | 2.90 | 2.90 | 2.90 | 2.75 | 2.30 |
| **Okla, Tulsa** | bb 3.05 | 3.80 | 3.375 | 3.375 | 2.10 | 2.00 | 3.80 | 2.25 | 3.25 | 3.30 | 3.30 | 3.25 | 3.25 | 3.50 | 3.00 | 3.00 | 3.60 | 3.60 | 2.75 | 2.75 | 3.42 | 2.75 | 2.25 | 3.00 | 2.80 | 3.00 | 3.00 | 2.75 |
| **S D, Pierre** | 2.75 | 3.00 | 2.92 | 2.92 | 1.48 | 1.48 | 2.00 | 1.60 | 4.00 | 2.35 | 2.35 | 2.35 | 4.00 | 2.85 | 2.10 | 2.10 | 2.90 | 2.92 | 2.50 | 2.50 | 3.10 | 3.05 | 1.85 | 2.30 | 1.85 | 3.00 | 1.65 | 1.65 |
| **Tex, Austin** | cc 2.925 | 3.75 | 3.25 .075[1] | 2.95 | 1.35 | 1.35 | 3.75 | 1.75 | 3.50 | 3.50 | 3.50 | 2.975 | 3.50 | 3.375 | 2.625 | 2.625 | 3.20 | 3.313 | 2.40 | .... | 3.313 | * | 1.25[f] | 3.25 | 3.25 | 3.25 | 2.90 | 1.45 |
| **Tex, Dallas** | dd 3.175 | 3.875 | 3.30 .075[1] | 3.05 .075[1] | 1.70 | 1.70 | 3.875 | 1.85 | 3.563 .10[1] | 3.125 .075[1] | 3.125 .075[1] | 3.175 | 3.563 .10[1] | 3.375 .075[1] | 3.00 | 2.915 | 3.375 .085[76] | 3.375 .085[76] | 2.60 | 2.60 | 3.375 .075[1] | * | 1.70 | 3.325 | 1.70 | 3.05 | 1.85 | 1.85 |
| **Tex, Houston** | ee 3.26 | 3.875 | 3.125 .075[1] | 2.875 .075[1] | 1.85 | .... | 3.875 | 2.025 | 3.50 .10[1] | 3.55 | 3.55 | 3.10 | 3.50 .10[1] | 3.65 .15[31,111] | 3.10 .075[1] | 2.925 | 3.425 .185[116] | 2.675 .025[102] | 2.875 | 2.875 | 3.375 .075[1] | .... | 2.125 | 3.30 | 3.30 | 2.80 | 2.80 | 2.025 |
| **Tex, San Antonio** | mm 3.00 | 3.50 | 3.375 | .... | 1.45 | 1.45 | 3.50 | 1.565 | 3.50 | 2.875 | 2.875 | 3.00 | 3.50 | 3.375 | 2.75 | 2.75 | 3.425 | 3.425 | 2.00 | 2.00 | 3.378 | 2.50 | 2.10 | 3.25 | 3.25 | 2.85 | 2.85 | 2.85 |
| **FAR WEST** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Ariz, Phoenix** | ff 3.36 | 4.00 | 3.65 .10[1] | .... | 2.36 | 2.36 | 3.75 | 2.58 | 3.71 .10[116] | 4.00 | 3.75 | 3.345 | 3.71 .10[116] | 3.80 .11[118] | 2.95 .10[119] | 2.84 | 3.75 .20[117] | 3.75 .20[117] | 3.00 | .... | 3.70 .09[1] | 3.61 | 2.48 | 3.43 | 3.235 | 3.065 | 2.615 | 2.615 |
| **Calif, Los Angeles** | gg 3.375 .10[1] | 3.85 .10[120] | 3.85 .20[5,122] | 3.60 .20[5,122] | 2.68 .10[1] | 2.68 .10[1] | 3.85 .10[120] | 2.93 .10[1] | 4.00 .30[121] | 3.63 | 3.60 .16[3,122] | 3.40 .10[1] | 4.00 .30[121] | 4.15 .04[27,3] | 3.36 .09[5,1] | 3.285 .07[5,1] | 3.80 .38[5,122] | 3.80 .38[5,122] | 3.35 .20[124] | 3.35 .20[124] | 3.70 .31[125] | * | 2.83 .10[1] | 3.81 .10[1] | 3.71 .10[1] | 3.41 .10[1] | 2.93 .10[1] | 2.89 .10[1] |
| **Calif, San Diego** | gg 3.375 .10[1] | 4.00 .10[120] | 3.85 .20[5] | 3.60 .20[5] | 2.66 .07[5,1] | 2.66 .07[5,1] | 4.00 .10[120] | 3.00 .07[5,1] | 3.875 .13[126] | 3.67 | 3.67 .16[3,122] | 3.375 .10[1] | 3.875 .13[126] | 4.05 .14[2,126] | 3.29 .10[1] | 3.285 .07[5,1] | 3.80 .29[6,127] | 3.80 .29[6,127] | 3.20 .10[1] | 3.20 .10[1] | 3.65 .09[1] | * | 2.83 .10[1] | 3.81 .10[1] | 3.71 .10[1] | 3.41 .10[1] | 2.93 .10[1] | 2.87 .07[5,1] |
| **Calif, San Francisco** | hh 3.30 .32[5,121] | 3.95 .52[5,120] | 3.85 .20[5,122] | 3.60 .20[5,122] | 2.685 .10[1] | 2.685 .10[1] | 3.95 .52[5,120] | .... .07[5,1] | 3.74 .16[3,124] | 2.70 .07[5,1] | 3.275 .16[3,124] | 2.94 .07[5,1] | 3.43 .22[5,125] | 3.91 .34[5,127] | 3.35 .21[5,128] | 3.09 .16[129] | 3.82 .46[3,40] | 3.82 .46[3,40] | 3.35 .25[70] | 3.35 .25[70] | 3.45 .24[141] | 2.61 .13[5,142] | 2.81 .10[1] | 3.85 .10[1] | 3.70 .10[1] | 3.41 .10[1] | 3.10 .10[1] | 2.955 .10[1] |
| **Idaho, Boise** | ii 3.00 | 3.60 | 3.275 .07[5,1] | 3.275 | 2.32 | 2.32 | 3.60 | 2.77 | 3.00 | 3.60 | 3.60 | 3.10 | 3.00 | 3.35 | 2.85 | 2.995 | 3.35 | 3.35 | 2.75 | 2.75 | 3.10 | 2.96 .07[5,1] | 2.75 .07[5,1] | 3.11 .07[5,1] | 2.96 .07[5,1] | 2.66 .07[5,1] | 2.66 .07[5,1] | 2.42 .07[5,1] |
| **Utah, Ogden** | 3.075 | 3.77 | 3.325 | 3.325 | 2.20 | 2.20 | 3.77 | 2.70 | 3.50 | 3.125 | 2.75 | 3.05 | 3.50 | 3.275 | 2.95 | 2.56 | 3.45 .10[5,28] | 3.45 .10[5,28] | 3.00 | 3.00 | 3.10 | 2.95 | 2.60[J] | 3.25[K] .10[1] | 2.05 .10[1] | 2.775 .10[1] | 2.65 .10[1] | 2.325 .10[1] |
| **Utah, Salt Lake City** | 3.075 | 3.77 | 3.325 .07[5,1] | 3.325 .07[5,1] | .... | 2.275 | 3.77 | 2.70 | 2.90 | 3.125 | 2.75 | 3.05 | 3.50 | 3.275 | 2.86 | 2.74 | 3.45 | 3.45 | 3.315 | 3.00 | 3.10 .16[143] | 3.05 | 2.35[J] .07[5,1] | 3.10[M] | 2.95 | 2.775 | 2.65 | 2.60 |
| **Wash, Seattle** | jj 3.13 .10[1] | 3.90 .10[1] | 3.40 .10[1] | 3.20 .10[1] | 2.70 .10[1] | 2.70 .10[1] | 3.90 .10[1] | 2.81 .10[1] | 3.40 .10[1] | 3.50 .10[1] | 3.50 .10[1] | 3.23 .10[1] | 3.40 .29[144] | 3.65 .26[145] | 3.135 .10[1] | 3.15 .184[146] | 3.70 .23[147] | 3.70 .23[147] | 3.04 | 3.04 | 3.525 .20[91] | 3.90 .07[5,1] | 2.87 .175[148] | 3.63 .20[2] | 3.26 .20[2] | 3.29 .20[2] | 2.99 .20[2] | 2.90 .10[1] |
| **Wash, Tacoma** | kk 3.13 .10[1] | 3.90 .10[1] | 3.40 .10[1] | 3.20 .10[1] | 2.70 .10[1] | 2.70 .10[1] | 3.90 .10[1] | 3.00 .10[1] | 3.60 .10[1] | 3.50 .10[1] | 3.02 .10[1] | 3.20 .10[1] | 3.50 .... | 3.40 .25[70] | 3.135 .... | 2.90 .... | 3.70 .24[149] | 3.70 .24[149] | 3.23 .... | 3.23 .... | 3.525 .10[1] | * .... | 3.07 .20[2] | 3.63 .20[2] | 3.26 .20[2] | 3.29 .20[2] | 2.99 .20[2] | 2.90 .10[1] |

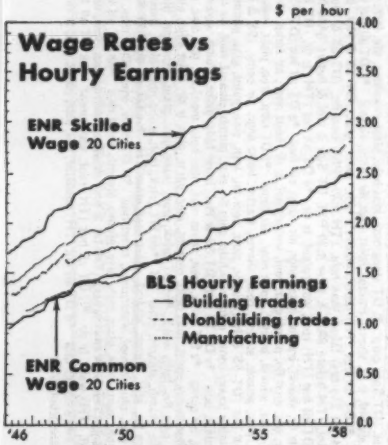
[a] Same as craft doing work [b] 7 hr day [c] 6 hr day **RANGES:** [A] 3.625/4.00 [B] 2.586/4.23 [C] 2.66/2.66 [D] 3.50/3.66 [E] 3.225/3.425 [F] 3.705/3.83 [G] 3.10/3.73 [H] 2.70/2.92 [I] .85/1.25 [J] 2.325/2.60 [K] 3.10/3.25 [L] 2.35/2.50 [M] 3.10/3.25

**BENEFITS:** [1] H&WF [2] 10¢ H&W, 10¢ PF [3] 15¢ H&W, 5¢ Advtg., 10¢ Unemp. Ins. [4] 15¢ H&W, 5¢ Advtg. [5] 10¢ H&W, 2¢ AF [6] 15¢ H&W, 15¢ PF, 2¢ IF [7] 15¢ H&W, 10¢ PF [8] 10¢ H&W, 5¢ PF [9] 5¢ H&W, 2½¢ PF [10] 11¢ H&W, 14¢ PF [11] 15¢ H&W, 7½¢ PF [12] 10¢ H&W, 1% PF [13] 10¢ H&W, 20¢ PF [14] 15½¢ H&W, 7½¢ PF [15] HW&P [16] 10¢ H&W, 1% PF, ½% AF [17] $12 per mo. Trust F [18] 12½¢ H&W, 10¢ PF [19] 7½¢ H&W, 8¢ PF [20] 7½¢ H&W, 2½¢ AF [21] 1% PF, ½% AF [22] ½% AF [23] 7½¢ H&W, 7½¢ PF, 8¢ EF [24] 1¢ AF [25] 7 PH [26] 8 PH [27] 6 PH [28] 10¢ H&W, 1¢ AF [29] 7½¢ H&W, 2½¢ EF [30] 5¢ Advtg. [31] 7½¢ H&W, 7½¢ VF [32] 5¢ H&W, 3¢ Promotion [33] 7½¢ H&W, 7½% VF, 1½¢ AF [34] 7½¢ H&W, 1% PF, 1/10% AF [35] 4% H&W, 4% PF [36] 4% H&W, 20¢ PF [37] 3% H&W, 3% PF, 10¢ VF [38] 5% H&W, 3% PF [39] 10¢ VF [40] 10¢ SF [41] 3% H&W, 8% PF [42] 3% VF [43] 20¢ BF, 2¢ Prem, 15¢ H&W, 15¢ PF [44] 1% JIB, 5% HW&P, 4% VF, 1% NC [45] 10% FB/5% HW&P [46] 13% + 10¢ FB [47] 3% H&W, 4% PF, 3% VF, 1% EF [48] 3% + 10¢ H&W, 3% PF, 2% + 10¢ VF [49] 12¢ H&W, 11½¢ PF [50] 15¢ H&W, 1¢ AF [51] 10¢ H&W, 7½¢ PF, 2¢ AF [52] 5¢ H&W, 15¢ PF [53] 7¢ H&W, 15¢ PF [54] 7½¢ H&W, 15¢ PF [55] 2% H&W, 1/10% AF [56] 10¢ H&W, 3% PF, 15¢ VF [57] 10¢ H&W, 3% PF, 2% PH [58] 10¢ H&W, 3% PF, 6% PH [59] 10¢ H&W, 7½¢ PF, 5¢ VF [60] 10¢ H&W, 10% PF, 4% VF [61] 10¢ H&W, 2% VF [62] 10¢ H&W, 10¢ PF, 23¢ VF [63] 10¢ H&W, 7% VF [64] 10¢ H&W, 7½¢ PF, 12½ VF [65] 7½¢ H&W, 7½¢ PF, 1½¢ EF [66] 5¢ PF, 7½¢ VF, 1½¢ EF [67] 12½¢ H&W, 10¢ VF [68] 10¢ H&W, 3% PF, 18¢ VF, 3¢ EF [69] 10¢ H&W, 7½¢ PF, 5¢ VF [70] 10¢ H&W, 15¢ VF [71] 10¢ H&W, 10¢ PF, 5¢ VF [72] 7½¢ H&W, 2¢ EF [73] 12½¢ Ins, 12½¢ PF [74] 10¢ H&W, 9¢ PF [75] 7½¢ H&W, 1¢ AF [76] 3¢ H&W, 1¢ AF [77] 7¢ H&W, 7¢ VF [78] 7¢ H&W, 7¢ PF [79] 7¢ H&W, 4¢ VF [80] 9¢ H&W, 6¢ VF [81] 11¢ H&W, 10¢ VF [82] 3¢ H&W, 6¢ VF [83] 7¢ H&W, 7¢ VF, 10¢ PF [84] $2.25/wk, H&W, 5¢-10¢ VF [85] 7½¢ H&W, 5¢ Ind Prom [86] VF [87] 7½¢ H&W, 11½¢ EF, 7½¢ VF [88] 7½¢ H&W, 6¢ VF, 8¢ PH [89] 2.75% H&W, 1% PF, 4% VF, 1% AF [90] 7½¢ H&W, 8% VF [91] 7½¢ H&W, 2% VF [92] 10¢ H&W, 10¢ VF [93] 10¢ H&W, 10¢ VF, 2¢ Prom [94] 10¢ H&W, 10¢ VF [95] 3% H&W, 7% VF, 1% PF [96] 3½¢ H&W, 1 wk V [97] 9¢ H&W, 6PH, 1 wk V [98] 10¢ H&W, 20¢ V, 3¢ Prom [99] 10% H&W, 1% PF, 10¢ VF, 4¢ AF [100] 7½¢ H&W, 11½¢ EF [101] 12¢ H&W, 8% VF [102] 10¢ VF incl. in base pay [103] 7½¢ H&W, 8% VF [104] 10¢ H&W, 7½¢ per mi travel pay [105] 10¢ H&W, 5% V [106] 10¢ H&W, 8¢ PF, 10¢ VF, 2½¢ EF, 5¢ Ind Prom [107] 20¢ H&W, 7½¢ VF [108] 10¢ H&W, 5¢ Travel pay [109] 7½¢ H&W, 10¢ PF, 4% VF [110] $2.25/wk VF [111] 1% NC [112] 7½¢ H&W, 10¢ travel pay [113] 7½¢ WF, 4¢ AF [114] 2¢ AF [115] 7½¢ H&W, 10¢ VF, 1¢ AF [116] Jt. Ind Prom [117] 7½¢ H&W, 12½¢ AF [118] 2% N.C., 1% to local Bd [119] 8¢ H&W, ½¢ administ, 1½¢ Jt Comm [120] 8¢ H&W, 2¢ Prom [121] 10¢ H&W, 10¢ PF, 5¢ Trust F, 5¢ Prom [122] 2½% H&W, 7½¢ VF [123] 10¢ H&W, ½% VF [124] 10¢ H&W, 10¢ SF [125] 10¢ H&W, 10¢ PF, 10¢ VF [126] Ind Prom [127] 10¢ H&W, 7½% VF, 1¢ AF [128] 10¢ H&W, 3¢ Prom [129] 10¢ H&W, 1% NC [130] 17½¢ H&W, 20¢ PF, 10¢ PH, 5¢ Jt Bd [131] 10¢ H&W, 10¢ PF, 10¢ VF, 2½¢ BF [132] 10¢ H&W, 10¢ PF, ½¢ AF [133] 12¢ H&W, 17½¢ PF, 20¢ VF, 3¢ Prom [134] 7½¢ H&W, 9¢ VF [135] 10¢ H&W, 12½¢ VF [136] 12¢ H&W, 20¢ VF, 17½¢ PF, 3¢ Prom [137] 10¢ H&W, 15½¢ VF, 4¢ PF, 5¢ Ind F [138] 14½¢ H&W, 7¢ VF [139] 7½¢ H&W, 8½¢ VF [140] 12½¢ H&W, 18¢ VF, 12½¢ PF, 2½¢ Jt Ind, 1¢ AF, 2½¢ Convsl. [141] 10¢ H&W, 10¢ PF, 14¢ VF [142] 7½¢ H&W, 8¢ PF [143] 10¢ H&W, 6¢ VF [144] 12¢ H&W, 17¢ VF [145] 7½¢ H&W, 18¢ VF, 3½¢ PF [146] 12¢ VF, 6¢ PH [147] 9¢ H&W, 14¢ VF [148] 7½¢ H&W, 10¢ PF [149] 10¢ H&W, 14¢ VF [150] 1% PF [151] 10¢ H&W, 10¢ PF, 20¢ VF [152] 8¢ H&W, 7¢ VF [153] 2½¢ EF

**OVERTIME** (DT = Double Time; TH = Time & ½): [a] DT [b] DT all but (DT Sun & Hol) labor, elec, glaz, tr dr, hoist engr [c] DT all but (TH) labor, mas help, tr dr, air tool [d] DT all but (TH) labor heavy const [e] DT all but (TH) elec, (DT Sun & Hol) mas help [f] DT all but (TH) elec, roof, waterproof [g] DT all but (TH) labor heavy const, mas help, cem fin, weld, tr dr, shovel, tractor, hoist engr, air comp, air tool, (TH SS & Hol) elec, paint, (DT Hol) stone mas, steamf, roof, waterproof [h] DT brick, iron, stone mas, tile, lath, plumb, steamf, sheet met, (DT Sun) carp [i] DT stone mas, mas help, plast, mos&ter, tile, lath, plumb, steamf, weld [j] DT carp, iron, cem fin, lath, plumb, steamf, tr dr, shovel, tractor, hoist engr, air comp, air tool [k] DT all but (DT SS & Hol) labor, mas help, mos&ter, cem fin, air tool [l] DT all but (TH) labor, mason's help, paint, glaz, (DT SS & Hol) brick, mos&ter, elec, plumb, sheet met [m] DT all but (TH 1st 2½ hrs) labor, mas help, (TH 4:30–7PM) cem fin, (DT SS & Hol) plumb, roof, waterproof, tractor, air comp, (TH) elec, paint, (TH before 8AM & after 4:30 PM, DT Sun & Hol & before 6AM Mon) glaz, (DT Sun & Hol) sheet met, (DT Hol) tr dr [n] DT all but (TH) roof, waterproof, tr dr [o] DT all but (TH) tr dr, (DT SS & Hol) cem wkr, elec, labor [p] DT all but (TH) labor, tr dr, shovel, tractor, hoist engr, air comp, air tool [q] DT all but (DT SS & Hol) labor, tr dr [r] DT all but (TH) mas help, mos&ter, tile, cem fin, paint, glaz, roof, waterproof, tr dr, hoist engr, air comp, air tool, (DT Sun & Hol) labor [s] DT all but (DT SS & Hol) elec, shovel, tractor, hoist engr, air comp [t] DT carp, iron, plast, mos&ter, tile, lath, sheet met, (DT SS & Hol) labor, mas help, elec, plumb, steamf, roof, shovel, tractor, hoist engr, air comp, (SS & Hol & after 1st 4 hrs) cem fin [u] DT SS & Hol [v] DT all but (DT SS & Hol) labor, carp, cem fin, lath, elec, paint, glaz, plumb, steamf, roof, waterproof [w] DT all but (DT Sun & Hol) labor heavy const, carp, mas help, cem fin, glaz, plumb, steamf, roof, air tool, (TH) paint [x] TH all but (DT) brick, iron, stone mas, plast, lath [y] DT all but (DT SS & Hol) labor bldg, paint, plumb, steamf, roof, waterproof, tr dr, air tool, (TH) labor heavy const, air comp [z] DT brick, iron, stone mas, mas help, mos&ter, tile, elec, plumb, steamf, sheet met, weld [aa] DT all but (TH) labor heavy const, mas help, cem fin, elec, paint, glaz, tr dr, hoist engr, air tool [bb] DT brick, iron, stone mas, plast, mos&ter, tile, cem fin, lath, weld [cc] DT brick, iron, stone mas, plast, mos&ter, tile, lath, shovel, tractor, hoist engr, (DT SS & Hol) carp, elec, plumb, steamf, other TH [dd] DT brick, iron, stone mas, plast, mos&ter, tile, lath, shovel, hoist engr, (DT SS & Hol) carp, cem fin, elec, plumb, steamf, sheet met, other TH [ee] DT all but (DT SS & Hol) labor bldg, mas help, mos&ter, tile, cem fin, elec, glaz, plumb, roof, waterproof, sheet met [ff] DT brick, iron, stone mas, mas help, lath, plumb, steamf, weld [gg] DT brick, carp, iron, stone mas, plast, lath, elec, plumb, steamf, sheet met [hh] DT all but (TH) tr dr, shovel, tractor, hoist engr, air comp, air tool, (TH 1st 4 hrs) labor, (TH 1st 2 hrs) mos&ter, paint, glaz, roof, waterproof, weld [ii] DT SS & Hol all but (DT) plumb, steamf, (TH) weld, tr dr [jj] DT all but (TH) roof, waterproof [kk] DT all but (TH) labor heavy const, tr dr, shovel, tractor, hoist engr, air comp, air tool [ll] DT all but (TH) mos&ter, tile, elec, paint, glaz, tr dr [mm] DT all but (TH) paint, glaz, plumb, steamf, roof, waterproof, tr dr

*Fourth Quarterly Round up:*

# Gains in Construction




Construction wages and average hourly earnings increase in '58 much faster than in manufacturing industries.

## HOW CONSTRUCTION WAGES increased in New York as reported by ENR

Dollars per hour

| Year | Carpenters | Bricklayers | Bricklayers' Helpers | Common Laborers | Structural Ironwkrs |
|---|---|---|---|---|---|
| | 10-hr day | 8-hr day | 8-hr day | 10-hr day | 8-hr day |
| 1874 | $0.23 | $0.43 | $0.18 | $0.14 | ..... |
| | 8-hr day | | | 9-hr day | |
| 1890 | 0.43 | 0.47 | 0.28 | 0.14 | ..... |
| | | | | 8-hr day | |
| 1907 | 0.63 | 0.70 | 0.38 | 0.22 | $0.60 |
| 1913 | 0.63 | 0.70 | 0.38 | 0.23 | 0.63 |
| 1930 | 1.65 | 1.93 | 1.24 | 1.03 | 1.93 |
| 1932 | 1.33 | 1.47 | 1.00 | 0.65 | 1.68 |
| | 7-hr day | 7-hr day | 7-hr day | | |
| 1938 | 1.75 | 1.89 | 1.14 | 0.91 | 1.93 |
| 1939 | 1.75 | 1.89 | 1.14 | 0.91 | 1.93 |
| 1942 | 1.85 | 2.00 | 1.211 | 0.95 | 2.00 |
| 1946 | 2.10 | 2.25 | 1.44 | 1.204 | 2.25 |
| 1947 | 2.467 | 2.646 | 1.66 | 1.438 | 2.563 |
| 1948 | 2.73 | 2.94 | 1.91 | 1.63 | 2.98 |
| 1949 | 2.75 | 3.20 | 1.95 | 1.70 | 3.00 |
| 1950 | 2.88 | 3.30 | 2.173 | 1.802 | 3.14 |
| 1951 | 3.09 | 3.548 | 2.279 | 1.957 | 3.348 |
| 1952 | 3.152 | 3.674 | 2.372 | 2.021 | 3.411 |
| 1953 | 3.335 | 3.858 | 2.539 | 2.184 | 3.591 |
| 1954 | 3.37 | 4.033 | 2.754 | 2.415 | 3.975 |
| 1955 | 3.637 | 4.15 | 2.817 | 2.489 | 4.017 |
| 1956 | 3.888 | 4.28 | 3.087 | 2.755 | 4.235 |
| 1957 | 4.131 | 4.62 | 3.321 | 2.928 | 4.512 |
| 1958 | 4.374*b* | 4.741*d* | 3.564*e* | 3.186*b* | 4.658*c* |
| 1959 | 4.644*b* | 5.127*d* | 3.834*e* | 3.456*b* | 4.886*f* |

**FRINGE BENEFITS:** *a* Rates from 1950 include fringe benefits such as welfare, pension, vacation and general benefit fund. *b* 4%WF-4%PF. *c* 3%WF-3%PF. *d* 4%WF-20¢PF; base rate incl. 10¢VF. *e* 5%WF-3%PF. *f* 3%WF-3%PF-3%BF

**CONTRACT STATUS:** Bricklayers' contract expire May 31, 1960; all other contracts expire June 30, 1960.

## COST OF LIVING rises to a record, then tapers off as measured by the Bu of Labor Statistics Consumer Price Index, 1947-49 = 100

| | 1939 | 1945 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 |
|---|---|---|---|---|---|---|---|---|
| Jan | 59.6 | 76.1 | 102.7 | 106.6 | 114.3 | 114.6 | 118.2 | 122.3 |
| Feb | 59.4 | 76.0 | 101.6 | 100.4 | 114.3 | 114.6 | 118.7 | 122.5 |
| Mar | 59.3 | 76.0 | 101.9 | 100.7 | 114.3 | 114.7 | 118.9 | 123.3 |
| Apr | 59.2 | 76.1 | 102.1 | 100.8 | 114.2 | 114.9 | 119.3 | 123.5 |
| May | 59.1 | 76.7 | 101.8 | 101.3 | 114.2 | 115.4 | 119.6 | 123.6 |
| Jun | 59.0 | 77.3 | 102.0 | 101.8 | 114.4 | 116.2 | 120.2 | 123.7 |
| Jul | 59.2 | 77.5 | 101.4 | 102.9 | 114.7 | 117.0 | 120.8 | 123.9 |
| Aug | 59.0 | 77.5 | 101.6 | 103.7 | 114.5 | 116.8 | 121.0 | 123.7 |
| Sept | 60.2 | 77.2 | 102.1 | 104.4 | 114.9 | 117.1 | 121.1 | 123.7 |
| Oct | 60.0 | 77.2 | 101.5 | 105.0 | 114.9 | 117.7 | 121.1 | 123.7 |
| Nov | 59.9 | 77.5 | 101.6 | 105.5 | 115.0 | 117.8 | 121.6 | ..... |
| Dec | 59.6 | 77.8 | 101.0 | 106.9 | 114.7 | 118.0 | 121.6 | ..... |

Pre-depr. high 77.0, Nov 1925—Depr. low 53.6, Apr 1933

## CONSTRUCTION WAGES climb slower in '58 than '57 for key skilled trades and for common labor, as measured by the ENR 20-Cities averages

**SKILLED LABOR, dollars per hour**
Bricklayer, carpenter, ironworker average)

| | 1926 | 1932 | 1939 | 1946 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 |
|---|---|---|---|---|---|---|---|---|---|---|
| J | 1.24 | 1.15 | 1.43 | 1.70 | 2.35 | 2.46 | 3.19 | 3.30 | 3.46 | 3.63 |
| F | 1.24 | 1.11 | 1.43 | 1.73 | 2.35 | 2.47 | 3.19 | 3.31 | 3.46 | 3.62 |
| M | 1.24 | 1.11 | 1.44 | 1.74 | 2.38 | 2.47 | 3.19 | 3.31 | 3.46 | 3.63 |
| A | 1.25 | .95 | 1.44 | 1.76 | 2.38 | 2.48 | 3.19 | 3.32 | 3.47 | 3.64 |
| M | 1.26 | .96 | 1.44 | 1.77 | 2.38 | 2.49 | 3.21 | 3.34 | 3.49 | 3.65 |
| J | 1.27 | .99 | 1.44 | 1.80 | 2.39 | 2.52 | 3.23 | 3.37 | 3.51 | 3.68 |
| J | 1.27 | 1.00 | 1.44 | 1.82 | 2.41 | 2.52 | 3.25 | 3.39 | 3.54 | 3.72 |
| A | 1.28 | .98 | 1.44 | 1.83 | 2.44 | 2.54 | 3.26 | 3.41 | 3.58 | 3.73 |
| S | 1.28 | .99 | 1.44 | 1.85 | 2.45 | 2.55 | 3.27 | 3.42 | 3.59 | 3.74 |
| O | 1.29 | .98 | 1.44 | 1.85 | 2.46 | 2.57 | 3.29 | 3.42 | 3.60 | 3.75 |
| N | 1.29 | .97 | 1.46 | 1.86 | 2.46 | 2.57 | 3.29 | 3.43 | 3.61 | 3.76 |
| D | 1.29 | .98 | 1.46 | 1.87 | 2.46 | 2.58 | 3.29 | 3.43 | 3.61 | 3.76 |
| Av | 1.27 | 1.02 | 1.44 | 1.80 | 2.41 | 2.52 | 3.24 | 3.37 | 3.53 | 3.69 |

**COMMON LABOR, dollars per hour**
(Building and heavy construction average)

| | 1926 | 1932 | 1939 | 1946 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 |
|---|---|---|---|---|---|---|---|---|---|---|
| J | .54 | .45 | .68 | .95 | 1.42 | 1.49 | 2.02 | 2.11 | 2.21 | 2.37 |
| F | .54 | .45 | .68 | .97 | 1.42 | 1.49 | 2.02 | 2.12 | 2.22 | 2.38 |
| M | .54 | .44 | .68 | .99 | 1.42 | 1.49 | 2.02 | 2.12 | 2.22 | 2.38 |
| A | .54 | .41 | .68 | 1.00 | 1.43 | 1.49 | 2.03 | 2.12 | 2.23 | 2.39 |
| M | .55 | .41 | .68 | 1.02 | 1.43 | 1.51 | 2.05 | 2.15 | 2.26 | 2.41 |
| J | .55 | .41 | .68 | 1.03 | 1.44 | 1.53 | 2.06 | 2.17 | 2.29 | 2.44 |
| J | .55 | .41 | .68 | 1.06 | 1.47 | 1.54 | 2.07 | 2.19 | 2.30 | 2.46 |
| A | .56 | .42 | .69 | 1.07 | 1.47 | 1.56 | 2.09 | 2.19 | 2.33 | 2.47 |
| S | .56 | .43 | .69 | 1.07 | 1.48 | 1.56 | 2.09 | 2.19 | 2.33 | 2.47 |
| O | .55 | .43 | .69 | 1.07 | 1.48 | 1.57 | 2.09 | 2.19 | 2.33 | 2.48 |
| N | .56 | .43 | .69 | 1.08 | 1.48 | 1.58 | 2.09 | 2.19 | 2.34 | 2.48 |
| D | .56 | .43 | .69 | 1.09 | 1.48 | 1.58 | 2.10 | 2.19 | 2.34 | 2.48 |
| Av | .55 | .43 | .68 | 1.03 | 1.45 | 1.53 | 2.08 | 2.18 | 2.28 | 2.44 |

Averages include fringe benefits—see wage table by trades for each of 20 cities on page 42 for nature and extent of these—welfare fund, pension fund and others.

## AVERAGE HOURLY EARNINGS of contract construction workers rise faster than for manufacturing labor as measured by Bu of Labor Statistics figures

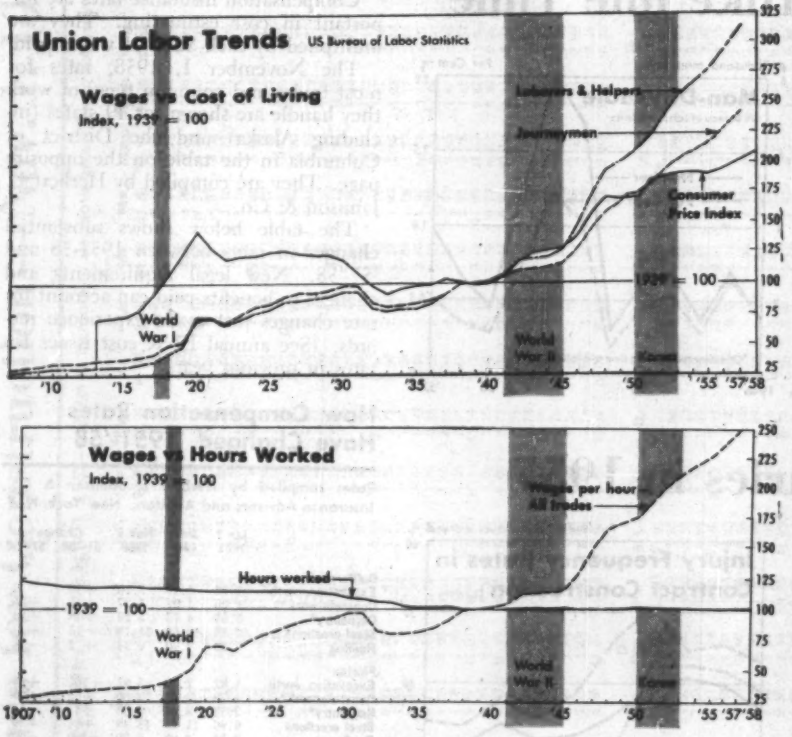
| | Building* | | | | | | | Non building* | | | | | | | Manufacturing | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1948 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 | 1948 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 | 1948 | 1949 | 1950 | 1955 | 1956 | 1957 | 1958 |
| Jan. | $1.40 | $1.92 | $1.98 | $2.65 | $2.74 | $2.92 | $3.07 | $1.30 | $1.71 | $1.75 | $2.31 | $2.41 | $2.55 | $2.71 | $1.00 | $1.41 | $1.42 | $1.84 | $1.93 | $2.05 | $2.10 |
| Feb. | 1.42 | 1.93 | 1.99 | 2.65 | 2.75 | 2.91 | 3.08 | 1.30 | 1.71 | 1.77 | 2.33 | 2.44 | 2.56 | 2.71 | 1.00 | 1.40 | 1.42 | 1.85 | 1.93 | 2.05 | 2.10 |
| Mar. | 1.41 | 1.93 | 2.00 | 2.63 | 2.75 | 2.91 | 3.06 | 1.28 | 1.70 | 1.77 | 2.31 | 2.45 | 2.55 | 2.71 | 1.04 | 1.40 | 1.42 | 1.85 | 1.95 | 2.05 | 2.11 |
| Apr. | 1.42 | 1.93 | 1.99 | 2.63 | 2.75 | 2.92 | 3.06 | 1.31 | 1.71 | 1.75 | 2.34 | 2.42 | 2.58 | 2.68 | 1.06 | 1.40 | 1.43 | 1.86 | 1.96 | 2.05 | 2.11 |
| May | 1.43 | 1.93 | 2.00 | 2.63 | 2.76 | 2.94 | 3.06 | 1.31 | 1.71 | 1.76 | 2.34 | 2.44 | 2.61 | 2.69 | 1.07 | 1.40 | 1.44 | 1.87 | 1.96 | 2.06 | 2.11 |
| June | 1.44 | 1.92 | 2.00 | 2.64 | 2.78 | 2.94 | 3.06 | 1.31 | 1.70 | 1.76 | 2.34 | 2.48 | 2.62 | 2.67 | 1.08 | 1.41 | 1.45 | 1.87 | 1.97 | 2.07 | 2.12 |
| July | 1.47 | 1.92 | 2.01 | 2.66 | 2.79 | 2.96 | 3.09 | 1.36 | 1.71 | 1.78 | 2.36 | 2.49 | 2.65 | 2.71 | 1.09 | 1.41 | 1.46 | 1.89 | 1.96 | 2.07 | 2.13 |
| Aug. | 1.48 | 1.93 | 2.02 | 2.67 | 2.81 | 2.97 | 3.09 | 1.35 | 1.71 | 1.79 | 2.38 | 2.51 | 2.67 | 2.73 | 1.11 | 1.40 | 1.46 | 1.88 | 1.98 | 2.07 | 2.13 |
| Sept. | 1.51 | 1.94 | 2.07 | 2.68 | 2.84 | 3.02 | 3.13 | 1.37 | 1.73 | 1.83 | 2.39 | 2.53 | 2.70 | 2.78 | 1.13 | 1.41 | 1.48 | 1.90 | 2.01 | 2.08 | 2.14 |
| Oct. | 1.53 | 1.94 | 2.08 | 2.70 | 2.86 | 3.02 | 3.12 | 1.40 | 1.74 | 1.83 | 2.40 | 2.55 | 2.69 | 2.78 | 1.14 | 1.39 | 1.50 | 1.91 | 2.02 | 2.09 | 2.14 |
| Nov. | 1.55 | 1.95 | 2.09 | 2.71 | 2.87 | 3.03 | .... | 1.43 | 1.75 | 1.84 | 2.40 | 2.54 | 2.70 | .... | 1.15 | 1.39 | 1.51 | 1.93 | 2.03 | 2.11 | 2.17 |
| Dec. | 1.57 | 1.96 | 2.12 | 2.72 | 2.89 | 3.05 | .... | 1.43 | 1.78 | 1.88 | 2.41 | 2.55 | 2.70 | .... | 1.16 | 1.41 | 1.54 | 1.93 | 2.05 | 2.10 | .... |

* Series revised March, 1948 to cover both public and private contract construction and to include workers engaged in off-site operations for construction as well as site workers.

## UNION WAGE RATES for Building Trades average the highest in the Middle Atlantic. Lowest average wages are in the South Atlantic, as measured by Bureau of Labor Statistics figures which exclude fringe benefits.

| Trade / Region: | US | New England I | Middle Atlantic II | Border States III | South-east IV | Great Lakes V | Middle West VI | South-west VII | Moun-tain VIII | Pacific IX |
|---|---|---|---|---|---|---|---|---|---|---|
| **All building trades, July 1, 1957** | $3.20 | $2.99 | $3.80 | $2.95 | $2.70 | $3.29 | $3.11 | $2.88 | $2.92 | $3.18 |
| Journeymen | 3.39 | 3.23 | 3.72 | 3.28 | 2.97 | 3.45 | 3.29 | 3.08 | 3.16 | 3.30 |
| Asbestos workers | 3.43 | 3.25 | 3.70 | 3.44 | 3.17 | 3.53 | 3.43 | 3.26 | 3.30 | 3.27 |
| Boilermakers | 3.52 | 3.25 | 4.06 | 3.43 | 3.25 | 3.51 | 3.29 | 3.25 | 3.37 | 3.45 |
| Bricklayers | 3.76 | 3.55 | 4.05 | 3.61 | 3.43 | 3.71 | 3.74 | 3.63 | 3.63 | 3.75 |
| Carpenters | 3.30 | 3.10 | 3.73 | 3.14 | 2.79 | 3.39 | 3.18 | 2.94 | 3.12 | 3.14 |
| Cement finishers | 3.28 | 3.49 | 3.71 | 3.06 | 2.70 | 3.30 | 3.45 | 2.90 | 3.10 | 3.14 |
| Electricians (inside wiremen) | 3.50 | 3.24 | 3.72 | 3.45 | 3.15 | 3.53 | 3.50 | 3.22 | 3.30 | 3.62 |
| Elevator constructors | 3.50 | 3.31 | 3.79 | 3.39 | 3.14 | 3.55 | 3.42 | 3.26 | 3.26 | 3.51 |
| Glaziers | 3.09 | 2.87 | 3.43 | 3.00 | 2.43 | 3.26 | 3.18 | 2.72 | 2.63 | 3.01 |
| Lathers | 3.57 | 3.47 | 3.81 | 3.45 | 2.94 | 3.53 | 3.41 | 3.37 | 3.28 | 3.60 |
| Machinists | 3.42 | 3.25 | 3.62 | 3.43 | 3.10 | 3.42 | 3.46 | 3.24 | 3.08 | 3.34 |
| Marble setters | 3.47 | 3.44 | 3.64 | 3.44 | 3.41 | 3.50 | 3.35 | 3.11 | 3.03 | 3.42 |
| Mosaic and terrazzo workers | 3.44 | 3.45 | 3.75 | 3.30 | 3.21 | 3.41 | 3.47 | 3.01 | 3.00 | 3.23 |
| Painters | 3.17 | 2.90 | 3.22 | 2.95 | 2.71 | 3.29 | 3.10 | 2.88 | 3.00 | 3.21 |
| Paperhangers | 3.11 | 2.99 | 2.89 | 2.71 | 2.71 | 3.25 | 3.10 | 2.72 | 2.81 | 3.31 |
| Pipefitters | 3.53 | 3.28 | 3.84 | 3.29 | 3.22 | 3.53 | 3.51 | 3.32 | 3.29 | 3.50 |
| Plasterers | 3.63 | 3.56 | 3.97 | 3.45 | 2.94 | 3.55 | 3.55 | 3.33 | 3.26 | 3.65 |
| Plumbers | 3.55 | 3.25 | 3.84 | 3.32 | 3.24 | 3.52 | 3.51 | 3.25 | 3.26 | 3.56 |
| Redmen | 3.35 | 3.60 | 3.80 | 3.26 | 2.97 | 3.50 | 3.16 | 2.90 | 3.13 | 3.10 |
| Roofers, composition | 3.12 | 3.27 | 3.54 | 2.68 | 2.34 | 3.39 | 3.03 | 2.43 | 3.02 | 3.06 |
| Roofers, slate and tile | 3.21 | 3.48 | 3.49 | 3.27 | 2.44 | 3.42 | 3.00 | 2.74 | 3.02 | 3.10 |
| Sheet-metal workers | 3.35 | 3.24 | 3.67 | 3.33 | 2.97 | 3.42 | 3.32 | 3.05 | 3.01 | 3.29 |
| Stonemasons | 3.62 | 3.59 | 3.89 | 3.72 | 3.42 | 3.59 | 3.60 | 3.74 | 3.75 | 3.78 |
| Structural ironworkers | 3.48 | 3.70 | 3.94 | 3.53 | 3.08 | 3.54 | 3.25 | 3.08 | 3.13 | 3.34 |
| Tile layers | 3.40 | 3.44 | 3.63 | 3.37 | 3.16 | 3.46 | 3.19 | 3.03 | 3.04 | 3.34 |
| Helpers and laborers | 2.45 | 2.36 | 2.71 | 2.05 | 1.65 | 2.63 | 2.36 | 1.77 | 2.20 | 2.54 |
| Bricklayers' tenders | 2.61 | 2.34 | 2.93 | 2.06 | 1.60 | 2.68 | 2.50 | 1.85 | 2.54 | 2.82 |
| Building laborers | 2.37 | 2.35 | 2.56 | 2.02 | 1.66 | 2.60 | 2.29 | 1.69 | 2.10 | 2.46 |
| Composition roofers' helpers | 2.02 | 2.30 | 2.40 | 2.07 | 1.57 | 2.35 | 2.40 | 1.66 | .... | 2.22 |
| Elevator constructors' helpers | 2.51 | 2.32 | 2.82 | 2.39 | 2.19 | 2.47 | 2.43 | 2.28 | 2.31 | 2.46 |
| Marble setters' helpers | 2.63 | 2.53 | 2.87 | 2.48 | .... | 2.71 | 2.39 | 1.80 | 2.45 | 2.61 |
| Plasterers' laborers | 2.71 | 2.49 | 2.93 | 2.22 | 1.63 | 2.78 | 2.65 | 1.97 | 2.54 | 2.38 |
| Plumbers' laborers | 2.52 | .... | 2.54 | 1.99 | 1.55 | 2.69 | 2.62 | 1.84 | 2.45 | 2.48 |
| Terrazzo workers' helpers | 2.76 | 2.60 | 3.04 | 2.33 | .... | 2.79 | 2.58 | 1.85 | 2.31 | 2.76 |
| Tile layers' helpers | 2.64 | 2.59 | 2.83 | 2.44 | .... | 2.70 | 2.32 | 1.81 | 2.45 | 2.52 |

# Workers' Wages




**WAGE RATES** in 51 cities not covered by ENR: BLS rates for Oct. 1, 1958.

| | Bricklayer | Carpenter | Electrician |
|---|---|---|---|
| Albuquerque, N. M. | $3.900 | $3.175 | $3.450+3½¢ |
| Burlington, Vt. | 3.650 | 2.750 | 2.375 |
| Butte, Mont. | 3.500 | 3.125 | 3.450+3½¢ |
| Charlotte, N.C. | 3.100 | 2.400 | 2.900+3¢ |
| Chattanooga, Tenn. | 3.750 | 3.050 | 3.400+3¢ |
| Cheyenne, Wyo. | 3.750 | 2.940 | 3.280+3¢ |
| Columbia, S. C. | 2.500 | 2.900 | 2.850+3¢ |
| El Paso, Tex. | 3.750 | 3.100 | 3.450+3½¢ |
| Erie, Pa. | 3.900+7½¢ | 3.490 | 3.675+4¢ |
| Evansville, Ind. | 3.625 | 3.100 | 3.430+4¢ |
| Fargo, N. Dak. | 3.600 | 2.620 | 3.100 |
| Grand Rapids, Mich. | 3.950 | 3.300+8¢ | 3.460+11½ |
| Hartford, Conn. | 3.750+22¢ | 3.350+22¢ | 3.900+12¢ |
| Houston, Tex. | 3.875 | 3.075 | 3.650+11½¢ |
| Knoxville, Tenn. | 3.650 | 2.925 | 3.280+3¢ |
| Lansing, Mich. | 3.880 | 3.230+8¢ | 3.600+12¢ |
| Las Vegas, Nev. | 4.150 | 3.375+8½¢ | 4.050+14¢ |
| Little Rock, Ark. | 3.500 | 3.000 | 3.250+3¢ |
| Madison, Wisc. | 3.550 | 3.100 | 3.550+15¢ |
| Manchester, N. H. | 3.750 | 3.090 | 3.100+3¢ |
| Memphis, Tenn. | 3.750 | 2.950 | 3.450+10½¢ |
| Miami, Fla. | 3.800 | 3.250 | 3.500+9¢ |
| Mobile, Ala. | 3.785 | 3.050+10¢ | 3.525+14¢ |
| Montgomery, Ala. | 3.250 | 2.450 | 3.000+3¢ |
| New Haven, Conn. | 3.650+22¢ | 3.350+22¢ | 3.750+11½¢ |
| Norfolk, Va. | 3.500 | 2.800 | 3.300+3¢ |
| Oakland, Calif. | 3.750+15¢ | 3.325+20¢ | 3.910+14¢ |
| Peoria, Ill. | 3.925 | 3.500+3½¢ | 3.700+9¢ |
| Portland, Maine | 3.500 | 2.850 | 3.150+3¢ |
| Providence, R. I. | 3.600+7½¢ | 3.075+7½¢ | 3.400+13¢ |
| Reading, Pa. | 3.700+12½¢ | 3.100 | 3.550+14¢ |
| Richmond, Va. | 3.500 | 2.600 | 3.150+3¢ |
| Rochester, N. Y. | 3.835+15¢ | 3.550 | 3.670+14¢ |
| Rock Island, Ill. | 3.750 | 3.150 | 3.650+4¢ |
| Santa Fe, N. M. | 3.900 | 3.175 | 3.450+3¢ |
| Savannah, Ga. | 3.400 | 3.000 | 3.350+3¢ |
| Schenectady, N. Y. | 3.600+10¢ | 3.275+7½¢ | 3.650+14¢ |
| Scranton, Pa. | 3.625 | 3.050 | 3.350+13¢ |
| Shreveport, La. | 3.750 | 2.825 | 3.475+3¢ |
| Sioux Falls, S. D. | 3.625 | 2.650 | 3.300+3¢ |
| South Bend, Ind. | 3.800+9¢ | 3.125 | 3.500+4¢ |
| Spokane, Wash. | 3.890 | 3.130+10¢ | 3.575+4¢ |
| Springfield, Mass. | 3.823+11¢ | 3.200+10¢ | 3.375+18¢ |
| Syracuse, N. Y. | 3.725+7½¢ | 3.345+7½¢ | 3.800+13¢ |
| Tampa, Fla. | 3.400 | 2.900 | 3.350+3¢ |
| Washington, D. C. | 3.900+9¢ | 3.500+9¢ | 3.900+14¢ |
| Wichita, Kan. | 3.750 | 3.000 | 3.350+3¢ |
| Wilmington, Del. | 3.825+10¢ | 3.550 | 3.825+14¢ |
| Worcester, Mass. | 3.650+15¢ | 3.400+10¢ | 3.400+13¢ |
| York, Pa. | 3.425 | 2.850 | 3.350+3¢ |
| Youngstown, Ohio | 3.858+10¢ | 3.675 | 3.750+4¢ |

## BLS Trends in Individual Trades

| Year | All Building Trades | Journeymen | Helpers & Laborers | Bricklayers | Carpenters | Cement Finishers | Electricians, Inside Wiring | Glaziers | Lathers | Painters | Plasterers | Plumbers | Sheet Metal Workers | Steamfitters | Stonemasons | Structural Ironworkers | Building Laborers | Bricklayers' Tenders |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wages Per Hour: Index based on 1939=100** | | | | | | | | | | | | | | | | | | |
| 1907M | 29.3 | 29.7 | 27.3 | 37.7 | 29.8 | 34.5 | 27.9 | .... | .... | 26.2 | 37.3 | 33.3 | 30.6 | 30.1 | 33.9 | 27.9 | 30.8 | 30.3 |
| 1913M | 36.1 | 36.9 | 31.8 | 41.5 | 36.8 | 38.0 | 33.8 | .... | 34.6 | 35.5 | 39.3 | 37.9 | 35.6 | 35.0 | 36.7 | 37.3 | 34.2 | 31.8 |
| 1926M | 88.3 | 88.7 | 84.9 | 94.1 | 88.5 | 86.6 | 81.5 | 80.7 | 83.0 | 90.9 | 92.4 | 83.9 | 86 3 | 84 9 | 92 7 | 81.1 | 86.9 | 85.5 |
| 1930M | 97.0 | 97.5 | 93.3 | 101.8 | 96.9 | 95.4 | 90.9 | 92.6 | 89.6 | 100.6 | 98.1 | 91.5 | 94.7 | 93.5 | 99.1 | 92.5 | 92.9 | 94.9 |
| 1932M | 83.1 | 83.6 | 79.2 | 87.0 | 79.6 | 83.6 | 87.9 | 78.0 | 80.0 | 85.3 | 81.4 | 80.5 | 83.4 | 81.0 | 88.4 | 81.0 | 78.7 | 78.4 |
| 1938J | 99.3 | 99.3 | 99.2 | 99.5 | 99.8 | 99.6 | 99.5 | 99.3 | 96.8 | 99.2 | 99.2 | 99.1 | 98.6 | 99.3 | 99.7 | 98.9 | 99.4 | 99.7 |
| 1942 | 111.9 | 110.9 | 117.5 | 108.3 | 112.1 | 110.8 | 113.5 | 108.8 | 109.1 | 110.5 | 105.0 | 110.5 | 116.0 | 109.3 | 108.0 | 108.7 | 119.6 | 115.7 |
| 1946 | 129.3 | 126.8 | 148.3 | 125.6 | 129.7 | 128.2 | 124.9 | 123.4 | 124.2 | 127.3 | 119.0 | 123.2 | 133.0 | 124.6 | 126.5 | 121.4 | 152.2 | 141.7 |
| 1948 | 163.5 | 159.4 | 192.7 | 165.6 | 164.7 | 161.1 | 154.4 | 155.5 | 157.8 | 154.4 | 148.2 | 158.2 | 164.4 | 154.3 | 166.0 | 151.9 | 200.8 | 185.5 |
| 1949 | 170.3 | 166.1 | 199.8 | 174.0 | 169.1 | 165.8 | 168.1 | 160.5 | 164.2 | 162.1 | 161.9 | 162.8 | 169.6 | 161.3 | 175.7 | 157.4 | 208.4 | 190.4 |
| 1950 | 177.8 | 173.2 | 210.8 | 180.4 | 177.4 | 172.7 | 172.3 | 169.4 | 179.6 | 167.7 | 169.3 | 168.7 | 177.9 | 168.3 | 187.1 | 164.8 | 220.0 | 203.4 |
| 1951 | 189.1 | 184.0 | 225.3 | 188.0 | 189.1 | 183.7 | 185.4 | 177.8 | 188.0 | 178.7 | 177.5 | 176.6 | 188.1 | 178.6 | 193.6 | 175.7 | 235.6 | 213.9 |
| 1952 | 200.8 | 195.3 | 240.0 | 203.9 | 200.6 | 192.2 | 196.0 | 188.0 | 194.4 | 190.2 | 187.6 | 187.0 | 202.2 | 189.1 | 207.5 | 184.0 | 251.7 | 228.0 |
| 1953 | 211.2 | 204.9 | 256.6 | 210.0 | 211.1 | 203.8 | 204.0 | 199.1 | 203.4 | 199.5 | 194.8 | 193.8 | 211.5 | 197.9 | 210.9 | 194.5 | 270.8 | 240.0 |
| 1954 | 218.9 | 212.2 | 267.7 | 216.8 | 217.9 | 209.7 | 210.0 | 204.9 | 208.7 | 208.7 | 198.4 | 204.5 | 221.5 | 208.5 | 215.7 | 201.3 | 282.6 | 250.4 |
| 1955 | 226.6 | 219.4 | 279.1 | 222.6 | 225.9 | 217.9 | 214.8 | 214.0 | 214.2 | 213.9 | 204.3 | 209.4 | 230.0 | 213.5 | 222.1 | 208.9 | 295.3 | 260.6 |
| 1956 | 237.1 | 229.2 | 295.9 | 232.6 | 235.4 | 228.4 | 226.6 | 225.2 | 223.3 | 222.5 | 212.1 | 218.7 | 240.4 | 223.3 | 232.1 | 217.7 | 312.1 | 281.2 |
| 1957 | 249.3 | 240.6 | 313.2 | 241.7 | 247.8 | 239.9 | 237.9 | 236.8 | 232.7 | 234.3 | 219.9 | 230.8 | 251.8 | 235.2 | 238.8 | 229.0 | 331.7 | 296.0 |
| **Hours Worked Per Week: Index based on 1939=100** | | | | | | | | | | | | | | | | | | |
| 1907M | 124.3 | 123.8 | 126.1 | 122.9 | 121.0 | 122.7 | 124.2 | .... | .... | 133.1 | 125.8 | 120.6 | 117.0 | 120.3 | 118.4 | 121.3 | 121.6 | 118.9 |
| 1913M | 118.2 | 118.0 | 118.3 | 114.9 | 115.6 | 119.8 | 120.7 | .... | 121.8 | 125.9 | 124.3 | 119.2 | 114.9 | 118.0 | 115.7 | 114.1 | 118.3 | 116.0 |
| 1926M | 114.9 | 115.1 | 113.9 | 113.3 | 113.5 | 113.4 | 115.9 | 117.5 | 118.9 | 120.7 | 118.2 | 116.5 | 111.8 | 114.4 | 114.5 | 112.8 | 112.1 | 113.9 |
| 1930M | 109.8 | 110.0 | 109.0 | 107.1 | 109.4 | 108.1 | 109.9 | 112.4 | 110.4 | 115.4 | 113.0 | 109.9 | 106.9 | 108.5 | 107.1 | 108.8 | 110.0 | 108.9 |
| 1932M | 106.5 | 106.6 | 105.7 | 103.1 | 105.0 | 106.6 | 106.2 | 107.9 | 109.3 | 114.2 | 110.1 | 108.0 | 103.6 | 106.4 | 104.8 | 104.8 | 104.9 | 104.0 |
| 1938J | 100.2 | 100.1 | 100.2 | 99.0 | 100.0 | 100.0 | 100.2 | 100.2 | 100.8 | 110.4 | 100.6 | 99.7 | 100.0 | 99.6 | 100.1 | 100.1 | 100.1 | 100.3 |
| 1942 | 101.1 | 101.8 | 98.8 | 100.8 | 100.8 | 100.6 | 104.5 | 102.0 | 102.5 | 106.5 | 102.0 | 99.9 | 100.9 | 102.2 | 100.2 | 101.1 | 98.8 | 98.6 |
| 1946 | 100.2 | 101.1 | 97.5 | 100.3 | 103.3 | 100.4 | 100.4 | 102.0 | 102.2 | 108.1 | 104.1 | 98.3 | 100.8 | 101.3 | 100.0 | 101.1 | 97.2 | 96.9 |
| 1948 | 100.1 | 101.0 | 97.4 | 100.5 | 100.2 | 100.0 | 100.4 | 103.5 | 98.1 | 106.2 | 102.9 | 97.6 | 100.1 | 101.3 | 101.0 | 101.1 | 97.2 | 96.4 |
| 1949 | 100.2 | 101.1 | 97.4 | 100.1 | 100.2 | 100.0 | 102.1 | 103.5 | 98.1 | 106.2 | 103.5 | 97.6 | 99.9 | 101.3 | 100.8 | 101.1 | 97.2 | 96.4 |
| 1950 | 100.3 | 101.2 | 97.4 | 100.1 | 100.2 | 100.0 | 102.1 | 103.5 | 100.2 | 106.2 | 103.9 | 98.2 | 99.9 | 101.3 | 100.8 | 101.1 | 97.2 | 96.4 |
| 1951 | 100.2 | 101.1 | 97.3 | 100.2 | 100.2 | 100.0 | 102.1 | 103.5 | 100.2 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.0 | 96.2 |
| 1952 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.1 | 103.5 | 100.2 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.3 |
| 1953 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.1 | 103.5 | 100.3 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.3 |
| 1954 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.1 | 103.5 | 98.8 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.3 |
| 1955 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.1 | 103.5 | 99.8 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.2 |
| 1956 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.0 | 103.5 | 99.8 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.2 |
| 1957 | 100.2 | 101.1 | 97.5 | 100.2 | 100.2 | 100.0 | 101.1 | 103.5 | 99.8 | 104.9 | 103.9 | 98.2 | 99.9 | 101.3 | 100.9 | 101.1 | 97.1 | 96.2 |

*M May 1. *J June 1. *All others July 1.

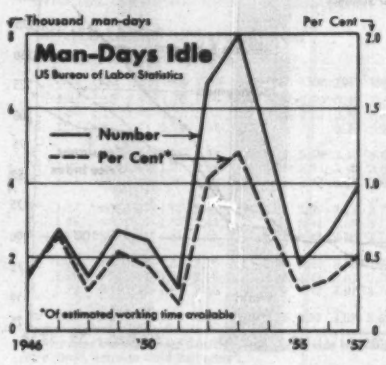
| | Painter | Plasterer | Laborer |
|---|---|---|---|
| Albuquerque, N. M. | $2.875 | $3.500 | $2.075 |
| Burlington, Vt. | 1.750 | 3.500 | 2.050 |
| Butte, Mont. | 2.900+7¢ | 3.250 | 2.300 |
| Charlotte, N. C. | 2.000 | 2.625 | 1.335 |
| Chattanooga, Tenn. | 2.800 | 3.300 | 1.900 |
| Cheyenne, Wyo. | 2.850 | 3.250 | 1.950 |
| Columbia, S. C. | 2.250 | 2.500 | .... |
| El Paso, Tex. | 2.675 | 3.250 | 1.700 |
| Erie, Pa. | 3.040 | 3.575 | 2.550+10¢ |
| Evansville, Ind. | 3.100+10¢ | 3.350 | 2.200+7½¢ |
| Fargo, N. Dak. | 2.500 | 3.250 | 1.920 |
| Grand Rapids, Mich. | 2.800+8¢ | 3.400 | 2.500+8¢ |
| Hartford, Conn. | 3.100+10¢ | 3.750+22¢ | 2.500+7¢ |
| Houston, Tex. | 3.100+7½¢ | 3.500+10¢ | 1.850 |
| Knoxville, Tenn. | 2.700 | 3.250 | 1.825 |
| Lansing, Mich. | 3.080+9¢ | 3.880+10¢ | 2.530+8¢ |
| Las Vegas, Nev. | 3.450+10¢ | 4.150+10¢ | 2.850 |
| Little Rock, Ark. | 2.600 | 3.300 | 1.600 |
| Madison, Wisc. | 3.000+7¢ | 3.400 | 2.550 |
| Manchester, N. H. | 2.430+7½¢ | 3.750 | 2.400 |
| Memphis, Tenn. | 2.870 | 3.230 | 1.600 |
| Miami, Fla. | 3.120+10¢ | 3.600 | 1.680 |
| Mobile, Ala. | 3.025 | 3.400+10¢ | 1.780+10¢ |
| Montgomery, Ala. | 2.500 | 2.750 | 1.200 |
| New Haven, Conn. | 3.100+22¢ | 3.650+22¢ | 2.600+7¢ |
| Norfolk, Va. | 2.720 | 3.230 | 1.500 |
| Oakland, Calif. | 3.350+14½¢ | 3.540+15¢ | 2.685+10¢ |
| Peoria, Ill. | 3.225 | 3.775+10¢ | 2.850 |
| Portland, Maine | 3.100 | 3.250 | 2.200 |
| Providence, R. I. | 2.700+8½¢ | 3.550+15¢ | 2.375+7½¢ |
| Reading, Pa. | 2.700+11¢ | 3.350 | 2.100+8¢ |
| Richmond, Va. | 2.250 | 3.120 | 1.500 |
| Rochester, N. Y. | 3.330 | 3.835+15¢ | 2.715+7½¢ |
| Rock Island, Ill. | 3.000+10¢ | 3.400 | 2.500 |
| Santa Fe, N. Mex. | 2.875 | 3.500 | 2.075 |
| Savannah, Ga. | 2.500 | 2.750 | 1.550 |
| Schenectady, N. Y. | 2.850 | 3.600+10¢ | 2.500+7½¢ |
| Scranton, Pa. | 2.625 | 3.325 | 2.325 |
| Shreveport, La. | 2.525 | 3.250 | 1.650 |
| Sioux Falls, S. D. | 2.350 | 3.000 | 1.575 |
| South Bend, Ind. | 2.900 | 3.310+7½¢ | 2.400+7½¢ |
| Spokane, Wash. | 3.000+7½¢ | 3.450+10¢ | 2.400+10¢ |
| Springfield, Mass. | 2.950+10¢ | 3.325+10½¢ | 2.325+7½¢ |
| Syracuse, N. Y. | 3.000 | 3.900+7½¢ | 2.575+7½¢ |
| Tampa, Fla. | 2.650 | 3.400 | 1.475 |
| Washington, D. C. | 3.465+10¢ | 3.700+15¢ | 2.300+7½¢ |
| Wichita, Kan. | 2.750 | 3.375 | 2.200 |
| Wilmington, Del. | 3.075+10¢ | 3.700+15¢ | 2.150 |
| Worcester, Mass. | 2.900+15¢ | 3.650+15¢ | 2.550+10¢ |
| York, Pa. | 2.450 | 3.250 | 1.925 |
| Youngstown, Ohio | 3.315+10¢ | 3.725+10¢ | 2.645+10¢ |

# Work Stoppages Hike Idle Time

Increased strike activity in construction is adding to contractors' cost problems by upsetting job schedules.

Strikes increased from a four-year low of 733 in 1955 to 785 in 1957. Also, stoppages tended to involve more workers. Result: Man-days lost rose from 1.8 million in 1955 to 3.97 in 1957, U.S. Bureau of Labor Statistics data shows.

This uptrend may be accelerating. Though BLS' 1958 report is not yet ready, about 2.2 million man-days were lost in five strikes involving over 10,000 workers each. Only three such major strikes in 7 resulted in about 1.1 million man-days lost.




# Fewer Work Injuries in 1957

Injury rates in contract construction set a new post-war low in 1957.

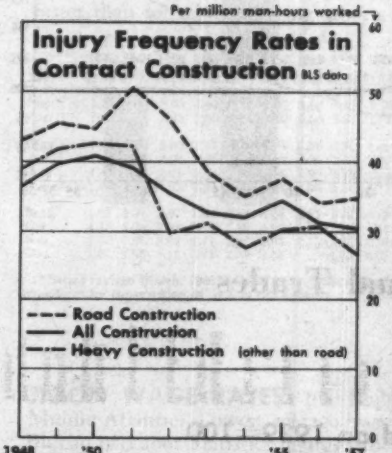
The average frequency rate was 30.3 disabling injuries per million man-hours worked. This compares with a frequency of 31.2 in 1956 and a post-war high of 41.0 injuries per million man-hours in 1950, the U. S. Bureau of Labor Statistics reports (see table below, chart at right).

Contractors in heavy construction showed the greatest improvement in their 1957 safety records.

In contrast to decreased frequency of injuries in '57, cases tended to be more serious than in '56. The injury severity rate (average days lost per 1,000 man-hours worked) increased in '57 to a total of 2.52, compared with 2.33 in 1956. Moreover, average days lost per injury rose from 85 in '56 to 95 in '57. And there were slightly more deaths among those workers permanently impaired during 1957.

Several minor disasters on construction projects accounted for the increase.

Though part of the 1957 decrease in work injuries was due to a drop in employment, the decline in number of injuries from 218,000 in 1956 to 200,000 in 1957 was relatively greater than the drop in employment.




The BLS work injury data for contract construction is based on a sample of 5,096 contractors in 1957 and 5,734 contractors in 1956.

## Compensation Insurance Costs on Construction

Compensation insurance rates are important in cost estimating. They are multiplied by each $100 of wages paid.

The November 1, 1958, rates for most trades and common types of work they handle are shown for 49 states (including Alaska) and the District of Columbia in the table on the opposite page. They are compiled by Herbert L. Jamison & Co.

The table below shows substantial changes in rates between 1951-58 and '57-'58. New legal requirements and changes in benefits paid can account for rate changes just as do experience records. (See annual ENR cost issues for rates in previous years.)

### How Compensation Rates Have Changed, 1951-'58

Rates compiled by Herbert L. Jamison & Co., Insurance Advisors and Auditors, New York, N. Y.

| | Jan 1 1951 | Jul 1 1957 | Nov 1 1958 | Change† '51-'58 % | Change† '57-'58 % |
|---|---|---|---|---|---|
| **California** | | | | | |
| Excavation, earth | 1.86 | 2.10 | 2.10 | +13 | 0 |
| Concrete work* | 1.26 | 1.02 | 1.27 | + 1 | +25 |
| Carpentry* | 3.53 | 4.75 | 5.23 | +48 | +10 |
| Steel erection/ | 12.83 | 10.55 | 11.18 | −13 | + 6 |
| Roofing | 6.23 | 6.90 | 6.34 | + 2 | − 8 |
| **Florida** | | | | | |
| Excavation, earth | 1.92 | 2.78 | 3.97 | +107 | +43 |
| Concrete work* | 1.70 | 2.71 | 2.80 | +65 | + 3 |
| Carpentry* | 2.15 | 3.48 | 3.03 | +41 | −13 |
| Steel erection/ | 9.46 | 11.93 | 15.48 | +64 | +30 |
| Roofing | 3.34 | 4.98 | 6.99 | +109 | +40 |
| **Massachusetts** | | | | | |
| Excavation, earth | 4.13 | 4.44 | 4.37 | + 6 | − 2 |
| Concrete work* | 4.38 | 4.13 | 3.37 | −23 | −18 |
| Carpentry* | 3.88 | 5.07 | 5.37 | +50 | + 6 |
| Steel erection/ | 20.02 | 23.75 | 24.57 | +23 | − 5 |
| Roofing | 13.38 | 17.57 | 14.04 | + 5 | −20 |
| **New York** | | | | | |
| Excavation, earth | 6.95 | 5.20 | 5.20 | −25 | 0 |
| Concrete work* | 6.39 | 5.10 | 5.10 | −20 | 0 |
| Carpentry* | 5.97 | 4.40 | 4.40 | −26 | 0 |
| Steel erection/ | 23.17 | 13.80 | 13.80 | −40 | 0 |
| Roofing | ** | 8.90 | 8.90 | .... | 0 |
| **Ohio** | | | | | |
| Excavation, earth | 1.30 | 2.08 | 1.94 | +49 | − 6 |
| Concrete work* | 1.22 | 1.21 | 1.20 | − 2 | − 1 |
| Carpentry* | 2.32 | 2.11 | 2.13 | − 9 | + 0.5 |
| Steel erection/ | 5.74 | 5.92 | 6.29 | +10 | + 6 |
| Roofing | 4.18 | 4.73 | 4.60 | +10 | − 3 |
| **Texas** | | | | | |
| Excavation, earth | 2.33 | 3.53 | 4.62 | +98 | +31 |
| Concrete work* | 3.32 | 3.44 | 3.05 | − 8 | −11 |
| Carpentry* | 3.32 | 3.31 | 3.72 | +12 | +12 |
| Steel erection/ | 8.91 | 13.97 | 19.55 | +120 | +40 |
| Roofing | 5.37 | 8.60 | 8.91 | +66 | + 4 |

*† Not adjusted for any legal requirements or changes in benefits which may have affected rates **3 stories or less */ Structural ***Rate varies with type of work

## Work Injury Rate Drops, But Severity Increases BLS data

| | Number of establishments reporting 1957 | Number of establishments reporting 1956 | Injury frequency a 1957 | Injury frequency a 1956 | Severity rate b 1957 | Severity rate b 1956 | Average days lost c 1957 | Average days lost c 1956 | 1957 Injuries Per cent resulting in Death | 1957 Injuries Per cent resulting in Perm impair d | 1957 Injuries Per cent resulting in Temp total | 1956 Injuries Per cent resulting in Death | 1956 Injuries Per cent resulting in Perm impair d | 1956 Injuries Per cent resulting in Temp total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contract construction | 5,096 | 5,734 | 30.3 | 31.2 | 2.52 | 2.33 | 95 | 85 | 0.9 | 3.0 | 96.1 | 0.8 | 3.5 | 95.7 |
| General building contractors | 1,577 | 1,836 | 32.4 | 34.5 | 1.95 | 1.83 | 56 | 53 | 0.4 | 2.7 | 96.9 | 0.3 | 2.5 | 97.2 |
| Heavy construction | 302 | 367 | 26.6 | 30.9 | 4.41 | 3.84 | 166 | 121 | 1.9 | 3.5 | 94.6 | 1.4 | 2.5 | 96.1 |
| Highway & street | 539 | 603 | 34.8 | 34.2 | 4.15 | 3.86 | 119 | 113 | 1.1 | 3.9 | 95.0 | 1.3 | 2.9 | 95.8 |
| Special-trade contractors | 2,678 | 2,928 | 28.9 | 28.1 | 2.14 | 2.04 | 82 | 85 | 0.7 | 2.4 | 96.9 | 0.8 | 2.4 | 96.8 |
| Plumb, heat, air cond | 680 | 768 | 35.9 | 36.2 | 1.07 | 1.02 | 42 | 39 | 0.3 | 1.5 | 98.2 | 0.3 | 1.8 | 97.9 |
| Painting & decorating | 220 | 309 | 22.6 | 18.6 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Electrical | 402 | 415 | 25.7 | 21.6 | 0.93 | 1.39 | 36 | 65 | 0.3 | 1.9 | 97.9 | 0.8 | 1.7 | 97.5 |
| Masonry, stonework, tile setting & plastering | 424 | 515 | 31.6 | 29.2 | 4.71 | 0.98 | 149 | 34 | 1.4 | 3.3 | 94.8 | 0.3 | 1.1 | 98.7 |
| Roofing & sheet-metal | 256 | 278 | 39.8 | 53.3 | 1.49 | 3.61 | 37 | 68 | | 2.0 | 98.0 | 0.4 | 1.7 | 97.9 |
| Structural steel erection | 67 | 58 | 31.0 | 32.4 | 6.31 | 10.86 | 203 | 335 | 2.5 | 3.5 | 94.0 | 3.8 | 5.4 | 90.8 |
| Misc. spec-trade contractors | 599 | 657 | 31.4 | 30.2 | 1.42 | 2.44 | 59 | 80 | 0.6 | 2.0 | 97.4 | 0.7 | 2.9 | 96.4 |

*a average number of disabling work injuries per million employee-hours worked *b average number of days lost for each 1,000 employee-hours worked; *c charged to each case *d includes permanent-total and permanent-partial impairments

# Base Rates on Compensation Insurance for Construction—Nov. 1, 1958

Data Compiled by Herbert L. Jamison & Co., Insurance Advisers and Auditors, New York, N. Y.—(Base Rates in effect Nov. 1, 1958—subject to increase or decrease according to experience ratings)

| Classification of work | Ala. | Alas. | Ariz. | Ark. | Calif. | Colo. | Conn. | Del. | D.C. | Fla. | Ga. | Idaho | Ill. | Ind. | Iowa | Kans. | Ky. | La. | Me. | Md. | Mass. | Mich. | Minn. | Miss. | Mo. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carpentry—1-2 Family Residences | $1.52 | $2.23 | $3.44 | $3.50 | $2.61 | $1.80 | $3.10 | $1.35 | $2.99 | $3.03 | $1.89 | $3.05 | $2.06 | $1.86 | $1.51 | $2.36 | $1.96 | $4.50 | $1.53 | $2.50 | $3.15 | $2.10 | $2.65 | $3.31 | $2.30 |
| Carpentry—3 stories or less | 1.63 | 3.54 | 3.44 | 3.83 | 5.23 | 2.60 | 3.51 | 1.35 | 2.99 | 3.03 | 1.89 | 3.10 | 2.88 | 2.01 | 2.01 | 2.44 | 2.06 | 4.90 | 1.55 | 2.55 | 5.37 | 2.10 | 2.65 | 3.36 | 2.65 |
| Carpentry—Interior trim, cabinet work | 0.72 | 1.87 | 3.44 | 1.93 | 5.23 | 1.22 | 2.14 | 1.35 | 3.43 | 3.14 | 1.01 | 1.55 | 1.39 | 1.01 | 0.89 | 1.42 | 0.98 | 2.55 | 0.74 | 1.94 | 1.78 | 1.34 | 2.65 | 2.10 | 2.75 |
| Carpentry—General | 2.02 | 4.78 | 3.44 | 4.89 | 5.23 | 3.47 | 4.09 | 1.35 | 4.26 | 4.81 | 3.03 | 5.14 | 3.61 | 2.58 | 2.67 | 5.40 | 2.33 | 6.49 | 2.67 | 4.96 | 8.32 | 2.10 | 5.24 | 5.56 | 3.81 |
| Chimney Construction, brick, concrete | 5.29 | 4.22 | 5.76 | 13.94 | 13.07 | 9.17 | 13.77 | 1.90 | 17.26 | 14.83 | 4.58 | 13.02 | 8.14 | 7.77 | 5.85 | 11.50 | 8.37 | 18.70 | 4.91 | 12.21 | 6.32 | 8.60 | 11.44 | 14.29 | 16.58 |
| Concrete Work—Bridges—Culverts | 2.94 | 7.48 | 6.05 | 5.19 | 6.01 | 5.00 | 6.40 | 1.90 | 10.36 | 5.53 | 4.11 | 6.63 | 4.40 | 2.67 | 4.15 | 5.21 | 2.36 | 6.63 | 3.58 | 4.93 | 5.29 | 3.74 | 5.77 | 6.52 | 6.40 |
| Concrete Work—3 stories or less | 0.93 | 4.92 | 2.66 | 1.14 | 1.27 | 1.38 | 2.76 | 1.90 | 4.32 | 2.80 | 0.85 | 2.47 | 1.06 | 1.14 | 1.09 | 1.56 | 1.19 | 2.63 | 1.32 | 2.10 | 3.37 | 1.35 | 2.05 | 2.10 | 1.88 |
| Concrete Work—General | 1.79 | 4.27 | 2.66 | 4.67 | 3.37 | 3.41 | 5.39 | 1.90 | 5.61 | 4.70 | 2.25 | 3.43 | 3.03 | 2.29 | 1.78 | 4.18 | 1.55 | 5.63 | 1.55 | 3.79 | 7.13 | 2.74 | 2.49 | 3.08 | 4.77 |
| Concrete or Cement Walks, Floors | 0.76 | 2.78 | 2.66 | 1.74 | 1.30 | 1.31 | 3.02 | 1.45 | 1.87 | 2.83 | 1.32 | 1.93 | 1.39 | 0.97 | 1.18 | 2.13 | 1.07 | 2.85 | 0.93 | 2.84 | 3.05 | 1.16 | 1.95 | 1.87 | 1.97 |
| Electrical Wiring | 0.93 | 1.35 | 1.87 | 1.85 | 1.65 | 1.58 | 1.55 | 1.00 | 2.25 | 2.36 | 1.37 | 1.88 | 1.12 | 1.21 | 0.85 | 1.67 | 0.86 | 2.18 | 0.72 | 1.77 | 1.59 | 1.09 | 1.30 | 1.80 | 1.81 |
| Excavation—Earth | 2.00 | 4.65 | 3.12 | 3.42 | 2.10 | 3.13 | 5.12 | 1.85 | 4.03 | 3.97 | 2.70 | 5.49 | 2.42 | 1.84 | 1.89 | 3.61 | 2.22 | 3.90 | 1.65 | 3.40 | 4.37 | 2.02 | 4.37 | 5.11 | 3.93 |
| Excavation—Rock—C | 3.32 | 7.04 | 5.12 | 6.19 | 6.13 | 5.97 | 9.37 | 1.85 | 7.24 | 9.11 | 4.00 | 6.60 | 7.31 | 4.26 | 2.76 | 6.73 | 5.16 | 8.91 | 2.53 | 6.04 | 8.90 | 4.08 | 4.40 | 7.05 | 7.70 |
| Glazing | 2.01 | 3.15 | 2.89 | 4.94 | 3.91 | 3.38 | 5.30 | 1.15 | 5.70 | 4.03 | 2.78 | 4.61 | 2.66 | 2.47 | 2.36 | 4.00 | 2.86 | 5.41 | 1.98 | 4.57 | 4.88 | 3.19 | 4.37 | 5.26 | 4.06 |
| Insulating | 0.85 | 2.98 | 2.52 | 2.05 | 3.20 | 1.75 | 2.27 | 1.35 | 2.45 | 2.39 | 0.91 | 2.62 | 2.03 | 1.37 | 1.29 | 1.78 | 0.99 | 3.47 | 1.23 | 1.85 | 3.34 | 1.29 | 3.10 | 2.52 | 2.37 |
| Lathing | 0.95 | 2.86 | 2.50 | 2.58 | 1.68 | 1.60 | 2.68 | 0.75 | 2.63 | 2.25 | 1.30 | 2.08 | 1.06 | 1.31 | 1.15 | 1.83 | 1.29 | 3.32 | 0.98 | 2.17 | 2.93 | 0.99 | 1.65 | 2.71 | 2.21 |
| Masonry | 0.94 | 3.92 | 2.20 | 1.74 | 2.36 | 1.38 | 3.09 | 0.65 | 2.27 | 2.65 | 0.94 | 2.51 | 1.64 | 1.29 | 1.09 | 1.56 | 1.21 | 2.63 | 1.34 | 2.28 | 3.47 | 1.46 | 1.60 | 2.13 | 2.47 |
| Painting and Decorating | 1.23 | 3.17 | 2.20 | 2.62 | 2.50 | 1.55 | 3.54 | 1.35 | 5.01 | 3.08 | 1.49 | 3.53 | 1.85 | 1.90 | 1.41 | 1.91 | 1.66 | 3.06 | 1.13 | 3.24 | 3.29 | 1.72 | 2.14 | 2.88 | 2.91 |
| Pile Driving—N.O.C. | 5.10 | 9.60 | 11.56 | 13.26 | 11.08 | 8.88 | 5.63 | 5.20 | 11.62 | 10.97 | 6.77 | 11.88 | 7.13 | 6.05 | 4.36 | 10.55 | 6.47 | 12.19 | 2.45 | 6.71 | 7.93 | 5.77 | 7.40 | 11.42 | 8.84 |
| Plastering | 0.85 | 2.53 | 2.52 | 2.05 | 1.68 | 1.75 | 2.27 | 0.75 | 2.45 | 2.70 | 0.91 | 2.62 | 1.11 | 1.37 | 1.29 | 1.78 | 0.99 | 2.18 | 1.23 | 1.85 | 2.69 | 1.29 | 1.65 | 2.52 | 1.53 |
| Plumbing | 0.80 | 1.53 | 2.08 | 2.09 | 1.83 | 1.51 | 1.99 | 0.65 | 2.19 | 2.22 | 1.50 | 1.74 | 1.50 | 1.34 | 1.14 | 1.86 | 1.06 | 2.97 | 0.66 | 2.00 | 1.77 | 1.17 | 2.09 | 1.83 | 2.92 |
| Roofing | 2.85 | 5.98 | 5.60 | 7.75 | 6.34 | 5.21 | 7.80 | 1.40 | 7.20 | 6.99 | 3.42 | 8.88 | 5.47 | 4.36 | 4.67 | 5.93 | 3.39 | 5.70 | 3.86 | 6.97 | 14.04 | 3.61 | 8.07 | 7.28 | 6.82 |
| Sheet Metal Work | 1.34 | 2.23 | 2.20 | 3.48 | 2.27 | 1.74 | 2.77 | 1.40 | 2.55 | 2.97 | 1.71 | 2.61 | 1.59 | 1.94 | 1.49 | 2.25 | 1.69 | 3.31 | 1.03 | 2.35 | 2.39 | 1.53 | 1.97 | 4.16 | 2.49 |
| Steel Erection—Doors—Sash | 1.32 | 4.00 | 1.47 | 3.19 | 2.32 | 2.28 | 4.13 | 5.65 | 4.26 | 3.06 | 1.66 | 2.90 | 1.91 | 2.08 | 1.59 | 2.64 | 1.84 | 4.78 | 1.38 | 2.93 | 3.65 | 1.82 | 2.84 | 3.62 | 2.82 |
| Steel Erection—Interior Ornament | 1.32 | 4.00 | 1.47 | 3.19 | 2.32 | 2.28 | 4.13 | 5.65 | 4.26 | 3.06 | 1.66 | 2.90 | 1.91 | 2.08 | 1.59 | 2.64 | 1.84 | 4.78 | 1.38 | 2.93 | 3.65 | 1.82 | 2.84 | 3.62 | 2.82 |
| Steel Erection—Structural | 5.51 | 28.63 | 12.15 | 14.68 | 11.18 | 11.48 | 11.01 | 5.65 | 27.63 | 15.48 | 9.77 | 19.01 | 8.45 | 5.97 | 11.44 | 15.76 | 7.73 | 13.19 | 5.76 | 11.98 | 24.57 | 9.87 | 11.80 | 11.58 | 11.97 |
| Steel Erection—Dwelling—2 stories | 3.02 | 11.62 | 3.96 | 7.71 | 4.44 | 5.80 | 7.79 | 5.65 | 9.17 | 7.18 | 4.36 | 8.62 | 5.53 | 3.38 | 3.94 | 7.18 | 3.83 | 8.46 | 2.88 | 6.74 | 10.62 | 3.39 | 7.09 | 7.79 | 7.70 |
| Steel Erection—General | 3.93 | 13.08 | 12.15 | 9.78 | 6.27 | 10.09 | 9.53 | 5.65 | 17.72 | 10.14 | 8.19 | 12.46 | 8.45 | 5.97 | 5.69 | 8.77 | 5.02 | 13.19 | 3.62 | 9.92 | 13.82 | 5.15 | 8.44 | 9.80 | 10.44 |
| Tile Work—Interior | 0.62 | 0.84 | 1.71 | 1.65 | 1.00 | 1.04 | 1.73 | 0.55 | 2.41 | 1.47 | 0.91 | 1.32 | 0.85 | 0.87 | 0.77 | 1.21 | 0.82 | 1.76 | 0.66 | 1.40 | 2.08 | 0.93 | 1.44 | 1.78 | 1.50 |
| Timekeepers and Watchmen | 1.41 | 4.85 | 1.53 | 2.98 | 2.25 | 2.31 | 4.28 | B | 3.71 | 3.84 | 2.01 | 3.25 | 2.77 | 2.05 | 1.68 | 2.73 | 1.93 | 4.92 | 1.47 | 3.33 | 5.60 | 2.17 | 3.48 | 3.33 | 4.25 |
| Waterproofing—Interior—(Brush) | 1.23 | 3.17 | 2.20 | 2.62 | 2.59 | 1.55 | 3.54 | 1.35 | 5.01 | 3.08 | 1.49 | 3.53 | 1.85 | 1.90 | 1.41 | 1.91 | 1.66 | 3.06 | 1.13 | 3.24 | 3.29 | 1.72 | 2.14 | 2.88 | 2.91 |
| Waterproofing—Trowel—Interior | 0.85 | 2.53 | 2.52 | 2.05 | 1.68 | 1.75 | 2.27 | 1.75 | 2.45 | 2.10 | 0.91 | 2.62 | 1.11 | 1.37 | 1.29 | 1.78 | 0.99 | 2.10 | 1.23 | 1.85 | 2.69 | 1.29 | 1.65 | 2.52 | 1.53 |
| Waterproofing—Trowel—Exterior | 0.94 | 3.92 | 2.20 | 1.74 | 2.36 | 1.38 | 3.09 | 0.65 | 2.27 | 2.65 | 0.94 | 2.51 | 1.64 | 1.29 | 1.09 | 1.56 | 1.21 | 2.63 | 1.34 | 2.28 | 3.47 | 1.46 | 1.60 | 2.13 | 2.47 |
| Waterproofing—Pressure Gun | 1.79 | 4.27 | 2.66 | 4.67 | 3.37 | 3.41 | 5.39 | 1.90 | 5.61 | 4.90 | 2.25 | 3.43 | 3.03 | 2.29 | 1.78 | 4.18 | 1.55 | 5.63 | 1.55 | 3.79 | 7.13 | 2.74 | 2.49 | 3.08 | 4.77 |
| Wrecking | 7.31 | 13.04 | 13.33 | 19.66 | 21.00 | 13.90 | 15.56 | 9.50 | 18.65 | 16.78 | 8.85 | 18.67 | 14.19 | 6.07 | 7.82 | 11.12 | 10.09 | 19.59 | 8.10 | 16.91 | 23.63 | 8.72 | 16.55 | 16.38 | 18.93 |

| Classification of work | Mont. | Neb. | D Nev. | N.H. | N.J. | N.M. | N.Y. | N.C. | D N.D. | D Ohio | Okla. | D Ore. | Pa. | R. I. | S. C. | S. D. | Tenn. | Texas | Utah | Vt. | Va. | D Wash. | D W. Va. | Wis. | D Wyo. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carpentry—1-2 Family Residences | $3.25 | $2.14 | $4.45 | $1.89 | $3.20 | $3.05 | $3.00 | $2.48 | $2.56 | $1.96 | $4.67 | $4.45 | $1.40 | $3.01 | $2.39 | $0.94 | $2.72 | $3.72 | $2.11 | $2.42 | $1.60 | $3.87 | $1.96 | $2.02 | $1.86 |
| Carpentry—3 stories or less | 3.36 | 2.60 | 4.60 | 2.05 | 3.40 | 3.80 | 4.40 | 3.04 | 2.56 | 2.12 | 6.04 | 4.55 | 1.40 | 3.55 | 2.41 | 0.96 | 2.75 | 3.72 | 2.11 | 2.46 | 2.03 | 3.98 | 2.06 | 2.72 | 1.86 |
| Carpentry—Interior trim, cabinet work | 1.63 | 1.10 | 3.77 | 1.04 | 1.55 | 1.63 | 4.40 | 1.56 | 2.56 | 1.06 | 4.52 | 2.06 | 1.40 | 2.56 | 1.40 | 0.73 | 1.54 | 3.07 | 2.11 | 1.02 | 0.94 | 1.27 | 0.98 | 2.02 | 1.86 |
| Carpentry—General | 5.69 | 3.06 | 7.61 | 2.73 | 4.40 | 5.72 | 4.40 | 4.10 | 5.07 | 2.72 | 7.05 | 5.23 | 1.40 | 6.88 | 5.40 | 2.69 | 3.84 | 5.40 | 2.11 | 3.03 | 1.97 | 5.11 | 2.33 | 3.28 | 1.86 |
| Chimney Construction, brick, concrete | 14.82 | 8.29 | 20.30 | 7.43 | 11.60 | 11.66 | 29.60 | 11.14 | 11.06 | 8.19 | 19.51 | 9.24 | 1.55 | 21.46 | 12.19 | 3.84 | 11.04 | 15.05 | 9.01 | 7.03 | 5.74 | 8.67 | 8.37 | 10.28 | 7.92 |
| Concrete Work—Bridges—Culverts | 4.96 | 3.35 | 9.36 | 4.42 | 5.70 | 7.54 | 6.10 | 4.97 | 5.58 | 2.81 | 11.83 | 6.38 | 1.55 | 8.25 | 7.50 | 2.55 | 4.21 | 9.55 | 4.44 | 4.28 | 2.07 | 5.78 | 7.36 | 4.09 | 3.91 |
| Concrete Work—3 stories or less | 2.57 | 1.33 | 3.52 | 1.72 | 2.65 | 1.50 | 5.10 | 1.00 | 1.98 | 1.20 | 2.75 | 3.97 | 1.55 | 3.88 | 1.06 | 0.86 | 1.54 | 3.05 | 1.95 | 2.12 | 0.94 | 3.66 | 1.19 | 1.47 | 1.72 |
| Concrete Work—General | 4.96 | 3.94 | 6.80 | 2.39 | 5.70 | 2.44 | 5.10 | 2.88 | 2.41 | 2.41 | 11.10 | 4.56 | 1.55 | 7.90 | 2.75 | 1.89 | 2.92 | 5.40 | 2.37 | 2.54 | 2.17 | 4.20 | 1.55 | 2.43 | 2.09 |
| Concrete or Cement Walks, Floors | 2.02 | 1.55 | 2.77 | 1.28 | 2.25 | 1.89 | 2.70 | 1.35 | 1.89 | 1.02 | 3.10 | 2.24 | 1.20 | 2.81 | 1.66 | 0.86 | 1.45 | 3.16 | 1.06 | 1.27 | 1.05 | 1.94 | 1.07 | 1.68 | 0.93 |
| Electrical Wiring | 1.62 | 1.12 | 2.22 | 1.35 | 1.90 | 2.14 | 2.50 | 1.26 | 1.26 | 1.28 | 2.55 | 2.15 | 0.85 | 1.23 | 1.67 | 0.73 | 1.40 | 2.08 | 1.11 | 1.07 | 0.97 | 1.95 | 0.86 | 1.34 | 0.98 |
| Excavation—Earth | 5.35 | 2.29 | 7.32 | 3.61 | 3.90 | 3.77 | 5.20 | 3.09 | 4.23 | 1.94 | 6.59 | 5.08 | 1.85 | 4.18 | 2.82 | 1.38 | 3.65 | 4.62 | 2.91 | 2.74 | 1.86 | 4.40 | 2.22 | 2.66 | 2.56 |
| Excavation—Rock—C | 7.70 | 4.80 | 10.66 | 5.48 | 9.80 | 6.17 | 8.50 | 9.64 | 4.25 | 4.49 | 7.50 | 10.15 | 1.85 | 10.10 | 5.82 | 2.43 | 5.15 | 9.83 | 3.30 | 4.68 | 3.82 | 9.32 | 5.16 | 7.19 | 2.90 |
| Glazing | 4.99 | 3.10 | 6.84 | 2.81 | 4.40 | 4.46 | 4.50 | 3.96 | 4.23 | 2.60 | 5.54 | 4.70 | 1.40 | 7.59 | 4.52 | 1.70 | 4.03 | 3.72 | 1.12 | 2.81 | 1.92 | 4.35 | 2.86 | 3.72 | 0.99 |
| Insulating | 2.80 | 1.27 | 3.84 | 1.60 | 4.80 | 2.71 | 4.40 | 1.48 | 3.00 | 1.44 | 5.28 | 4.00 | 1.40 | 3.40 | 1.88 | 1.09 | 1.97 | 4.35 | 2.61 | 1.65 | 0.99 | 3.40 | 0.99 | 2.74 | 2.30 |
| Lathing | 2.23 | 1.45 | 3.06 | 1.36 | 2.20 | 2.11 | 2.60 | 1.88 | 1.60 | 1.38 | 2.83 | 3.90 | 0.75 | 3.44 | 2.10 | 0.87 | 2.07 | 2.25 | 1.63 | 1.32 | 1.29 | 3.30 | 1.29 | 1.31 | 1.43 |
| Masonry | 2.61 | 1.36 | 3.66 | 1.75 | 3.30 | 2.18 | 4.20 | 1.02 | 1.55 | 1.36 | 2.75 | 4.07 | 1.20 | 3.97 | 1.07 | 0.87 | 1.54 | 3.05 | 1.52 | 2.16 | 0.82 | 3.77 | 1.21 | 1.72 | 1.34 |
| Painting and Decorating | 3.84 | 1.98 | 5.26 | 2.96 | 5.00 | 3.08 | 4.80 | 2.28 | 2.07 | 2.00 | 3.55 | 4.55 | 2.10 | 2.69 | 2.63 | 1.43 | 2.10 | 3.09 | 1.56 | 1.91 | 1.66 | 4.19 | 1.66 | 2.04 | 1.37 |
| Pile Driving—N.O.C. | 13.04 | 7.02 | 17.86 | 3.76 | 7.50 | 11.70 | 8.40 | 8.23 | 7.16 | 6.38 | 17.64 | 11.09 | 2.15 | 8.15 | 8.30 | 4.60 | 11.09 | 14.82 | 5.42 | 3.67 | 4.60 | 9.79 | 6.47 | 8.45 | 4.77 |
| Plastering | 2.80 | 1.27 | 3.84 | 1.69 | 2.20 | 2.71 | 3.70 | 1.48 | 1.60 | 1.44 | 3.49 | 4.00 | 0.75 | 3.40 | 1.88 | 1.09 | 1.97 | 2.48 | 2.61 | 1.65 | 0.99 | 3.40 | 0.99 | 1.15 | 2.30 |
| Plumbing | 1.71 | 1.11 | 2.34 | 1.26 | 2.40 | 2.17 | 3.00 | 1.56 | 2.02 | 1.41 | 2.68 | 1.90 | 0.85 | 1.89 | 1.80 | 0.75 | 1.45 | 2.83 | 1.26 | 1.36 | 1.08 | 1.72 | 1.06 | 1.63 | 1.11 |
| Roofing | 9.64 | 5.40 | 13.21 | 6.57 | 9.40 | 7.53 | 8.90 | 6.13 | 7.80 | 4.60 | 18.03 | 10.87 | 2.60 | 10.11 | 5.17 | 3.28 | 5.02 | 8.91 | 4.71 | 5.36 | 3.24 | 10.65 | 3.39 | 10.55 | 4.14 |
| Sheet Metal Work | 2.69 | 2.04 | 3.69 | 1.64 | 2.40 | 2.99 | 4.30 | 2.39 | 1.90 | 2.04 | 3.36 | 4.38 | 2.60 | 3.36 | 2.44 | 1.05 | 2.43 | 3.91 | 1.79 | 1.65 | 1.35 | 3.75 | 1.69 | 2.00 | 1.58 |
| Steel Erection—Doors—Sash | 3.13 | 2.05 | 4.28 | 1.92 | 4.80 | 2.96 | 3.20 | 2.65 | 2.75 | 2.19 | 5.26 | 3.47 | 4.20 | 4.85 | 2.69 | 1.23 | 2.91 | 3.70 | 1.63 | 1.88 | 1.48 | 3.26 | 1.84 | 3.12 | 1.43 |
| Steel Erection—Interior Ornament | 3.13 | 2.05 | 4.28 | 1.92 | 4.80 | 2.96 | 3.20 | 2.65 | 2.75 | 2.19 | 5.26 | 3.47 | 4.20 | 4.85 | 2.69 | 1.23 | 2.91 | 3.70 | 1.63 | 1.88 | 1.48 | 3.26 | 1.84 | 3.12 | 1.43 |
| Steel Erection—Structural | 19.54 | 8.58 | 26.77 | 8.76 | 16.40 | 9.71 | 13.80 | 10.29 | 11.41 | 6.29 | 18.22 | 17.26 | 4.20 | 19.27 | 13.41 | 5.27 | 9.30 | 19.58 | 6.79 | 10.11 | 6.09 | 15.86 | 7.73 | 8.08 | 5.98 |
| Steel Erection—Dwelling—2 stories | 8.39 | 5.11 | 11.49 | 4.26 | 5.70 | 8.34 | 4.40 | 5.61 | 6.86 | 3.56 | 13.09 | 8.10 | 4.20 | 11.23 | 8.07 | 2.58 | 4.65 | 10.77 | 5.17 | 4.81 | 3.01 | 7.51 | 3.83 | 4.70 | 4.55 |
| Steel Erection—General | 13.40 | 7.84 | 18.35 | 7.50 | 7.90 | 9.71 | 10.80 | 6.96 | 8.16 | 6.39 | 18.22 | 12.31 | 4.20 | 16.31 | 7.82 | 2.66 | 5.76 | 10.77 | 6.79 | 7.23 | 3.90 | 10.56 | 5.02 | 7.37 | 5.98 |
| Tile Work—Interior | 1.37 | 0.97 | 1.88 | 0.91 | 1.60 | 1.44 | 2.10 | 1.06 | 1.39 | 0.92 | 2.00 | 1.48 | 0.65 | 2.18 | 1.30 | 0.62 | 1.05 | 1.70 | 1.76 | 0.94 | 0.66 | 1.38 | 0.82 | 0.96 | 1.55 |
| Timekeepers and Watchmen | 3.13 | 2.24 | 4.29 | 2.03 | 3.00 | 3.25 | 3.60 | 2.77 | 3.37 | 2.16 | 4.10 | 3.99 | B | 5.28 | 2.60 | 1.37 | 2.97 | 1.72 | 2.39 | 2.03 | 1.68 | 4.18 | 1.93 | 3.05 | 2.06 |
| Waterproofing—Interior—(Brush) | 3.84 | 1.98 | 5.26 | 2.96 | 5.00 | 3.08 | 4.80 | 2.28 | 2.07 | 2.00 | 3.00 | 4.55 | 4.20 | 2.69 | 2.63 | 1.43 | 2.10 | 3.09 | 1.56 | 1.91 | 1.66 | 4.19 | 1.66 | 2.04 | 1.37 |
| Waterproofing—Trowel—Interior | 2.80 | 1.27 | 3.84 | 1.69 | 2.20 | 2.71 | 3.70 | 1.48 | 1.60 | 1.44 | 3.49 | 4.00 | 0.75 | 3.40 | 1.88 | 1.09 | 1.97 | 2.48 | 2.61 | 1.65 | 0.99 | 3.40 | 0.99 | 1.15 | 2.30 |
| Waterproofing—Trowel—Exterior | 2.67 | 1.36 | 3.66 | 1.75 | 3.30 | 2.18 | 4.20 | 1.02 | 1.55 | 1.36 | 2.75 | 4.07 | 1.20 | 3.97 | 1.07 | 0.87 | 1.54 | 3.05 | 1.52 | 2.16 | 0.82 | 3.77 | 1.21 | 1.72 | 1.34 |
| Waterproofing—Pressure Gun | 4.96 | 3.94 | 6.80 | 2.39 | 5.70 | 2.44 | 5.10 | 2.88 | 2.41 | 2.41 | 11.10 | 4.56 | 1.55 | 7.90 | 2.75 | 1.89 | 2.92 | 5.40 | 2.37 | 2.54 | 2.17 | 4.20 | 1.55 | 2.43 | 2.09 |
| Wrecking | 20.72 | 12.80 | 28.39 | 11.61 | 19.40 | 18.51 | A | 13.19 | 16.00 | 6.39 | 18.04 | 23.11 | 12.00 | 26.56 | 17.69 | 7.08 | 13.20 | 18.20 | 19.45 | 11.39 | 6.50 | 21.52 | 10.09 | 9.93 | 17.12 |

*A Specially rated—refer to company. *B Assigned to main classification. *C Special occupational disease loadings apply. *D Subscription to State Fund mandatory: Nevada, Industrial Comm., Carson City, Nev.; Workmen's Compensation Bureau, Bismark, N. Dak; The Industrial Commission of Ohio, Columbus, Ohio; Industrial Accident Commission, Salem, Ore.; Department of Labor and Industry, Olympia, Wash.; State Compensation Commission, Charleston, W. Va.; Workmen's Compensation Dept., State Treasurer's Office, Cheyenne, Wyo.

*Fourth Quarterly Round up:* ▶ **Building Cost and Price Indexes**

# Building Prices Are on the Rise

Contractors' selling prices for buildings are on the rise again.

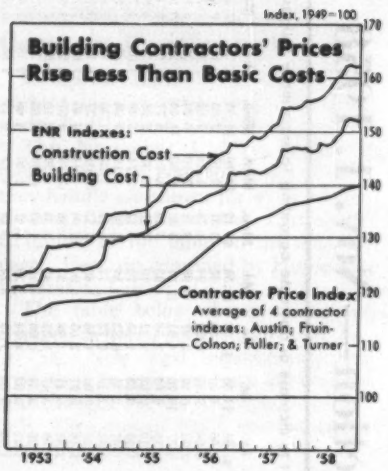
Though the uptrend is slow and not unanimous, it is expected to accelerate next spring when new 1959 labor contracts raise wages.

The rise in selling prices reflects the new cost push (ENR Sept. 18, p. 54) caused by higher prices contractors have to pay for key construction materials, labor and equipment. As in '58, the 1959 rise in contractor prices is expected to proceed more slowly than the rise in the basic costs. The reason: Competition will remain very keen for a slowly expanding volume of new building work available.

The uptrend in contractor prices is evident in the Turner Construction Co. index, which rose in October, and the Fruin-Colnon Contracting Co. index, which edged upward in September. Two other contractor indexes, Austin Co. and George A. Fuller Co., are steady. But all four are at all-time highs.

The pressure of higher costs shows up in the ENR and other weighted cost indexes tabulated below.

Though softer lumber prices caused the ENR Building Cost and Construction Cost Indexes to dip in November, both are near their record highs of October. And all but one of the other weighted cost indexes are at all-time highs.




Exception is the Smith Hinchman and Grylls index, which approximates a selling price index by adding to basic materials and labor costs estimates of contractor overhead, profit and changes in productivity. Though this index is below a year ago, it reversed a decline in August and has held steady since. By contrast, the E. H. Boeckh commercial and factory building cost index increased each month from April to November. It also includes adjustments for estimated contractor overhead, profit and changes in productivity.

The building cost and price indexes reported on this page are updated in each quarterly Construction Cost and Estimating Guide issue of ENR. Previous reports this year were in these issues: March 20; June 19; and September 18.

The 1959 schedule for updating these indexes is: March 17; June 18; September 17; and December 17.

For the historical record and full description of these building cost indexes see ENR's first quarterly Construction Cost and Estimating Guide, ENR March 20, p. 38.

ENR cost indexes for 20 U.S. and two Canadian cities are computed weekly and published in CONSTRUCTION DAILY. These indexes are updated with official monthly values on the Scoreboard page in ENR.

## ENR Cost Indexes for 22 Cities, 1913=100

| | Construction Cost Index | | | | | | | | | | Building Cost Index | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | | | 1957 | | | 1958 | | | | Dec | | | 1957 | | | 1958 | | | |
| City | '49 | '55 | '56 | Jun | Sep | Dec | Mar | Jun | Sep | Dec | '49 | '55 | '56 | Jun | Sep | Dec | Mar | Jun | Sep | Dec |
| Atlanta | 345 | 495 | 522 | 523 | 550 | 548 | 558 | 558 | 584 | 584 | 313 | 419 | 441 | 442 | 458 | 456 | 456 | 461 | 472 | 472 |
| Baltimore | 424 | 592 | 602 | 643 | 670 | 670 | 672 | 701 | 708 | 709 | 351 | 472 | 498 | 503 | 518 | 520 | 523 | 527 | 534 | 542 |
| Birmingham | 377 | 534 | 553 | 556 | 563 | 593 | 593 | 593 | 599 | 619 | 319 | 442 | 455 | 457 | 468 | 476 | 477 | 480 | 488 | 493 |
| Boston | 532 | 709 | 747 | 746 | 773 | 765 | 764 | 793 | 809 | 807 | 372 | 487 | 509 | 518 | 531 | 523 | 522 | 528 | 547 | 542 |
| Chicago | 542 | 762 | 790 | 831 | 838 | 836 | 835 | 838 | 857 | 859 | 353 | 489 | 506 | 511 | 530 | 528 | 527 | 535 | 560 | 562 |
| Cincinnati | 496 | 671 | 715 | 713 | 751 | 748 | 745 | 746 | 780 | 777 | 362 | 466 | 491 | 489 | 507 | 504 | 501 | 502 | 519 | 515 |
| Cleveland | 530 | 785 | 819 | 856 | 861 | 859 | 847 | 850 | 874 | 880 | 349 | 489 | 508 | 522 | 527 | 524 | 512 | 515 | 527 | 533 |
| Dallas | 397 | 510 | 534 | 525 | 547 | 547 | 547 | 553 | 573 | 573 | 318 | 426 | 449 | 439 | 451 | 451 | 451 | 459 | 469 | 469 |
| Denver | 470 | 653 | 696 | 702 | 710 | 710 | 725 | 725 | 731 | 731 | 359 | 483 | 519 | 510 | 522 | 522 | 523 | 525 | 530 | 532 |
| Detroit | 515 | 772 | 808 | 823 | 832 | 831 | 852 | 852 | 889 | 892 | 351 | 498 | 527 | 535 | 545 | 545 | 545 | 545 | 573 | 574* |
| Kansas City | 511 | 702 | 715 | 735 | 742 | 742 | 742 | 762 | 768 | 768 | 357 | 494 | 503 | 503 | 516 | 516 | 517 | 527 | 533 | 533 |
| Los Angeles | 494 | 708 | 731 | 731 | 778 | 778 | 773 | 814 | 822 | 824 | 340 | 479 | 494 | 496 | 508 | 513 | 507 | 514 | 527 | 530 |
| Minneapolis | 512 | 720 | 757 | 781 | 788 | 788 | 803 | 818 | 825 | 824 | 363 | 502 | 526 | 530 | 537 | 537 | 537 | 548 | 554 | 553 |
| New Orleans | 379 | 545 | 564 | 572 | 581 | 591 | 588 | 591 | 602 | 617 | 325 | 449 | 464 | 467 | 477 | 481 | 478 | 477 | 485 | 494 |
| New York | 539 | 791 | 842 | 852 | 890 | 888 | 910 | 912 | 953 | 940 | 402 | 545 | 569 | 578 | 590 | 591 | 593 | 601 | 622 | 609 |
| Philadelphia | 515 | 721 | 747 | 780 | 776 | 775 | 775 | 795 | 803 | 790 | 392 | 535 | 549 | 560 | 562 | 561 | 561 | 569 | 581 | 569 |
| Pittsburgh | 492 | 695 | 727 | 762 | 791 | 788 | 804 | 819 | 827 | 827 | 377 | 506 | 533 | 541 | 566 | 568 | 569 | 573 | 593 | 595 |
| St. Louis | 522 | 727 | 759 | 789 | 796 | 796 | 814 | 840 | 849 | 844 | 377 | 502 | 525 | 538 | 546 | 546 | 552 | 558 | 567 | 563 |
| San Francisco | 483 | 684 | 724 | 758 | 763 | 761 | 758 | 798 | 820 | 812 | 345 | 461 | 484 | 486 | 497 | 506 | 503 | 507 | 533 | 533 |
| Seattle | 530 | 685 | 722 | 749 | 756 | 747 | 785 | 789 | 799 | 799 | 341 | 429 | 450 | 456 | 467 | 458 | 466 | 470 | 484 | 484 |
| Montreal | 394 | 550 | 561 | 586 | 587 | 591 | 584 | 603 | 603 | 603 | 314 | 427 | 438 | 451 | 452 | 453 | 446 | 449 | 449 | 449 |
| Toronto | ... | 544 | 595 | 611 | 608 | 609 | 607 | 605 | 622 | 631 | ... | 432 | 459 | 469 | 468 | 471 | 470 | 468 | 469 | 472 |
| US Average | 480 | 673 | 704 | 721 | 738 | 738 | 744 | 757 | 773 | 774 | 353 | 479 | 500 | 504 | 516 | 516 | 516 | 521 | 535 | 535 |

## Building Cost & Price Indexes, 1913=100

| | Weighted Cost Indexes | | | | | | | | Contractor Selling Price Indexes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year and Month | ENR Construction | ENR Building | American Appraisal Company | Assoc. Gen'l Contractors | Marshall & Stevens | E. H. Boeckh: Comm'l & Factory Bldg *† | Smith Hinchman & Grylls #† | ICC Railroad: station & office ** | Austin # | Fruin-Colnon | Fuller | Turner *** |
| 1913 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | ... | 100 | 100 | 100 | 100 |
| 1926 | 208 | 185 | 217 | 197 | 185 | 181 | 185 | 184 | 185 | 218 | 202 | 195 |
| 1932 | 157 | 141 | 155 | 171 | 130 | 144 | 128 | 141 | 117 | 178 | 157 | 136 |
| 1939 | 236 | 197 | 200 | 188 | 183 | 191 | 199 | 166 | 152 | 208 | 195 | 182 |
| 1946 | 346 | 262 | 322 | 257 | 288 | 275 | 319 | 291 | 273 | 285 | 290 | 318 |
| 1949 | 477 | 352 | 490 | 342 | 365 | 369 | 395 | 368 | 307 | 382 | 382 | 413 |
| 1956 | 692 | 491 | 635 | 462 | 503 | 489 | 544 | 480 | 400 | 503 | 482 | 544 |
| 1957 av. | 724 | 509 | 663 | 483 | 515 | 507 | 568 | 500 | 420 | 512 | 504 | 576 |
| Oct. | 737 | 517 | 672 | 490 | ... | 512 | 574 | ... | ... | 514 | 513 | 580 |
| Nov. | 737 | 517 | 672 | 491 | ... | 512 | 572 | ... | ... | 514 | ... | ... |
| Dec. | 738 | 516 | 672 | 490 | 523.5 | 512 | 572 | ... | 426 | 514 | ... | ... |
| 1958: | | | | | | | | | | | | |
| Jan. | 743 | 517 | 673 | 493 | ... | 513 | 574 | ... | ... | 517 | 519 | 580 |
| Feb. | 744 | 516 | 673 | 493 | ... | 512 | 572 | ... | ... | 517 | ... | ... |
| Mar. | 744 | 516 | 674 | 493 | 524 | 511 | 570 | ... | 426 | 517 | ... | ... |
| Apr. | 746 | 517 | 675 | 494 | ... | 512 | 572 | ... | ... | 518 | 521 | 573 |
| May | 752 | 519 | 677 | 498 | ... | 513 | 564 | ... | ... | 531 | ... | ... |
| Jun. | 757 | 521 | 680 | 498 | 523 | 517 | 561 | ... | 427 | 531 | ... | ... |
| Jul. | 763 | 524 | 681 | 502 | ... | 519 | 561 | ... | ... | 537 | 531 | 573 |
| Aug. | 764 | 526 | 683 | 503 | ... | 520 | 562 | ... | ... | 537 | ... | ... |
| Sep. | 773 | 535 | 690 | 504 | 530 | 521 | 562 | ... | 427 | 538 | ... | ... |
| Oct. | 775 | 537 | 691 | 504 | ... | 523 | 562 | ... | ... | 538 | 531 | 580 |
| Nov. | 774 | 535 | 691 | 504 | ... | 523 | 562 | ... | ... | 538 | ... | ... |
| Dec. | 774 | 535 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

For historical record and description of what these indexes cover, see ENR March 20, 1958, pp. 38, 39
† Includes overhead, profit and adjustment for estimated changes in productivity * Reported on 1928–29 = 100 base
** Index reported on 1910–14 = 100 base # Index reported on 1926 = 100 base *** Index reported on 1939 = 100 base

### Monthly Index History

*Historical record of ENR cost indexes, graphs and tables is in the supplement to Engineering News-Record, October 17, 1957 by Business News Department, Engineering News-Record, P. O. Box 89, Times Square Station, New York 36, N. Y. Reprints are available at $1.00 each.*

# How much could be sliced off the cost of your workmen's compensation?

It's a known fact that, in the construction industry, Workmen's Compensation rates run from 2% to as high as 30% of payroll. That's why so many cost-conscious contractors turn to American Mutual to save dollars on their workmen's compensation—and here's how they do it!

First, all American Mutual policyholders get their insurance protection at low net cost because they're with a mutual company—American Mutual policyholders saved nearly $9,000,000 in dividends received in 1957 alone. Then each policyholder has the advantages of American Mutual's specialized loss-control services that help them reduce accidents to a minimum . . . resulting in lower insurance costs. Third, claims are handled promptly and expertly. What's more, trained and experienced American Mutual sales representatives help them to avoid costly loopholes or overlap in the insurance coverage.

Year after year, contractors find that these benefits of carrying Workmen's Compensation with American Mutual not only add dollars to their operating profits but provide advantages in bidding for the next job. See your *friendly* AM *man* who'll gladly explain how you can do the same. American Mutual, Dept. EN-7, Wakefield, Massachusetts.

**American Mutual**

**LIABILITY INSURANCE COMPANY**

**Your friendly AM man can advise you on all your liability insurance needs**

**A leading writer of Workmen's Compensation, all forms of Liability, Crime, Accident and Health Insurance**

# How to cut job delays that rob scraper production

**Moving dirt in the competitive situation today calls for a high degree of operating efficiency. A well-run scraper spread can load-out up to *twice* as much earth as an identical spread that is hampered by an accumulation of "minor" delays. There are many ways of correcting an unbalanced fleet to eliminate waiting time. To help you keep your scrapers and pushers moving at a uniform rate for highest production, here are some helpful suggestions.**

**One of the most serious lost-time problems is in waiting time of pushers or scrapers in the cut.**

### IF pushers are waiting

**1.** It seems only good sense to have on every job several small, high-speed scrapers in the 7 to 9-yard "handyman" class. With such scrapers available, you can pull one or more in to balance your production fleet whenever pushers are waiting for scrapers. When the balance swings the other way and scrapers are waiting, chase your small units out on odd-lot dirt-moving. They are money savers for small-yardage cuts where they can profitably self-load, such as: light production cuts; removing and stockpiling topsoil; building access roads, detours, drainage; or for haul-road improvement, where they can spread gravel, fill muddy low spots, etc.

**2.** Check to see if you can shorten the haul by concentrating dumping on the near-end of the fill.

**3.** Study haul and return. Are your operators "dogging"... is haul-road smooth, properly drained, properly surfaced for fast travel? Operators automatically slow down on rough roads to protect their machines and their own bottoms. Would it help to get your graders in to improve haul-road and get more speed? If there is a one-way stretch where scrapers are delayed, maybe you need to two-lane it or build a midway pass-around?

**4.** When pushers are waiting, it's a good time to put an extra yard or two on each load with a longer push cycle. Also, if you have modern high-speed pushers, be sure they push through to give the prime-mover a running start into hauling-gear.

**5.** Couple your pusher to a ripper and plow-up cut for easier loading, by changing your push-back-push cycle to an oval with end turn-arounds. This productively utilizes your pusher waiting-time, speeds up loading cycles, gets you bigger payloads.

**6.** If pusher is equipped with dozer blade, use wait time to clear boulders, stumps and roots from cut areas. This will speed loading cycles later on.

**7.** Use pusher waiting time to improve cut and haul-road drainage (especially if you have modern, high-speed, dozer-blade equipped pushers that can handle hit-and-run jobs).

**8.** If your unbalance is caused by a scraper being down for repairs or service, check your preventive maintenance program and try harder for elimination of work interruptions.

**9.** If your scrapers are getting slow cycles due to wet footing, improve drainage with your grader, and remember next time to provide good working drainage for the cuts ahead *before the rains come*. Also remember to incorporate side drainage in cuts and fills by keeping drainage areas at the side low, and by leaving a crowned center area until you get to finished grade stage.

### IF scrapers are waiting

**1.** Load a little on the light side, don't take the extra seconds it takes to get that last yard up on the heap. Don't let pusher take time to boost the scraper-unit up to hauling-gear speed after completing load.

**2.** Dump your scrapers at the far end of the dump area. Possibly you can shift one or two scrapers for an extra long haul operation.

**3.** Have scrapers partially self-load with a light cut as they make their incoming pass through the cut area.

**4.** Step-load your machines in long cut areas to save pusher time.

**5.** Pull in an extra pusher if you have any high-speed, rubber-tired tractors available. Even a heavy-duty

grader in the 150 to 190 hp class can do an acceptable push-loading job on the modern, 18-yard scrapers with easy-loading Fullpak® scrapers. Incidentally, your graders should be equipped with utility dozer blades. These improved big graders can move in at speeds to 27 mph.

**6.** Consider purchase of one or more high-speed dozer-pusher units for utility traveling-man service over your entire work-area. With speeds of around 17 mph, one of these units can easily be pulled in from pioneering, finishing, or utility work to step-up production of your scraper fleet whenever needed.

## General suggestions on unbalance

**1.** Operators, being human, tend to bunch-up in the borrow pit. Try to speed-up the laggards and slow down the hot-rod drivers. An across-the-fleet bonus for increasing pay-yard production can be a very sound investment. But make your "pay-off" on teamwork basis . . . not on individual competition.

**2.** Scheduling a swing-shift crew for servicing and refueling of your equipment can give you an added ½ hour of production for each scraper during the course of the day. A service truck can easily handle urgent calls for fuel, grease or field adjustments during the lunch time break.

**3.** A bonus to operators for no down-time on a week or monthly basis can pay-off if accompanied by an educational program on preventive maintenance.

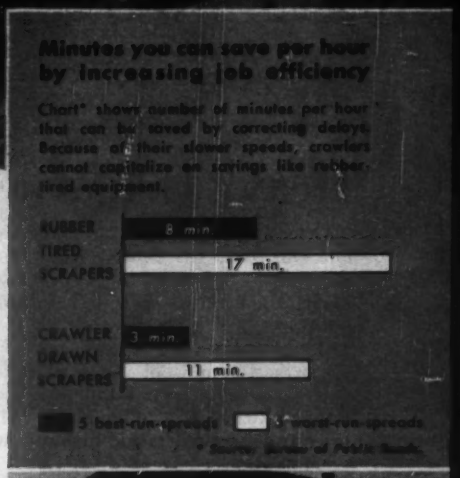
**4.** If you have a temporarily unbalanced fleet involving waiting line-up of scrapers, get your scraper operators to slow down a bit on haul and return. Sure, it's only natural for them to high-ball and get a five for a smoke and a chat as they sit and wait. But the high-balling costs you fuel, tire wear and higher maintenance. If it results in extra pay-yards for profit, that's swell. But, if it just gives the boys a chance to sit with idling engines, slow them down with an "easy does it".

**5.** Ripping and scarifying hard loading material pays off in faster loading. On some jobs, it is possible to reduce loading time from 3 minutes to ½ minute by loosening the soil. Clearing boulders and stumps from cut areas will help speed loading and also reduce equipment delays needed for repairs.

**6.** Travel speed throughout the cycle is a major factor affecting scraper output. Spongy, slippery, rock-strewn, or just rough and rutted haul-roads can cut your scraper's speed in half. Haul-roads properly graded and drained by modern motor graders permit maximum speeds, increase safety, and reduce costly equipment repairs.

## Want to talk it over with your foreman?

If you do, we'll gladly send you reprints of this advertisement without charge. Just tell us how many copies you want. There is also a valuable 60-page booklet prepared by our field engineers called "Earthmoving — An Art and a Science". Ask for that too, if you need extra copies. Write . . .


Minutes you can save per hour by increasing job efficiency
Chart* shows number of minutes per hour that can be saved by correcting delays. Because of their slower speeds, crawlers cannot capitalize on savings like rubber-tired equipment.
RUBBER TIRED SCRAPERS
8 min.
17 min.
CRAWLER DRAWN SCRAPERS
3 min.
11 min.
5 best-run-spreads
5 worst-run-spreads

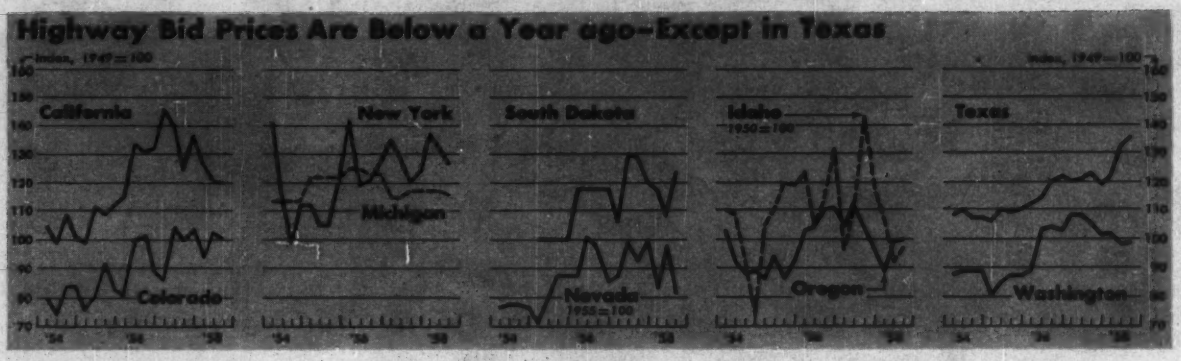
Ripping and scarifying hard loading material pays off in faster loading. On some jobs, it is possible to reduce loading time from 3 minutes to ½ minute by loosening the soil. Clearing boulders, stumps, and roots from cut areas will often help speed loading and also reduce need for equipment delays for repairs.

Travel speed throughout the cycle is a major factor affecting scraper output. Spongy, slippery, rock-strewn, or just rough and rutted haul-roads can cut your scraper's speed in half. Haul-roads properly graded and drained by modern motor graders permit maximum speeds, increase safety, and reduce costly equipment repairs. P-1637-DC-2

**LeTOURNEAU-WESTINGHOUSE COMPANY,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

**Where quality is a habit**




# Heavy Construction Bids Turn Lower in '58

Heavy construction contractors are in a taut competitive race for new work this year. To win contracts, they are using their most effective weapon: bid prices.

Third quarter bid prices were below a year ago in nine of eleven states reporting to ENR. And the Bureau of Public Roads U.S. Composite Mile Price Index for federal-aid highways was 2.5% under a year ago (see charts above and table below).

Despite substantial increases in wages and steel costs, bid prices declined in the third quarter in five states. The BPR index was also down. However, prices firmed up in five states.

Only Texas and Kentucky report '58 highway bids higher than '57. Prices on Texas highways in the third quarter were 9.7% higher than a year earlier. Kentucky estimates its index at 132, based on 1946 = 100, in the first nine months of '58. That's 4% above 1957.

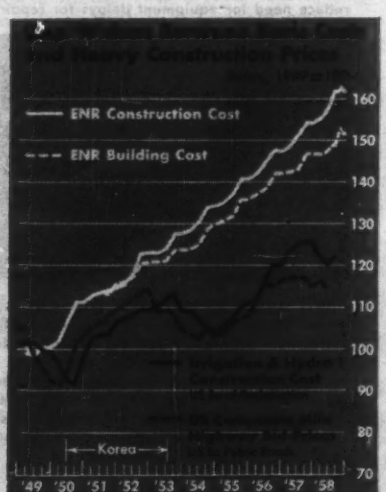
Also down are irrigation and hydro construction costs in 17 western states and Alaska. The Denver office, U.S. Bureau of Reclamation reports a drop early this year. A trend reversal in October recouped only part of the decline.

## Highway Price Indexes in 10 States and the US

Reported by state highway departments — US Bureau of Public Roads Indexes, 1925-29=100

| Base Year=100: | California 1940 | Colorado 1949 | Idaho 1950 | Michigan 1940 | Nevada 1955 | New York 1940 | Oregon 1940 | South Dakota 1940 | Texas '40-'53 | Washington 1940 | Excavation[1] 17,491* cy Price | Excavation[1] 17,491* cy Index | Surfacing[2] 3,729* sy Price | Surfacing[2] 3,729* sy Index | Structures: Reinf. steel 18,000* lb Price | Structures: Struct. steel 4,325* lb Price | Structures: Struct. concr. 68* cy Price | Structures: Combined Index | Composite Mile Index | ENR Construction Cost Index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | $0.35† | 100.0 | $2.22† | 100.0 | $0.082† | $0.067† | $22.18† | 100.0 | 100.0 | 100.0 |
| 1956 Av. | 247.3 | 92.8 | 118.3 | 185.4 | 118.2 | 252.2 | 193.8 | 198.8 | 105.0 | 214.1 | 0.38 | 108.2 | 3.89 | 175.5 | 0.131 | 0.202 | 84.33 | 253.8 | 183.3 | 334.6 |
| 1957 Av. | 264.3 | 97.3 | 116.1 | 173.0 | 124.3 | 268.5 | 187.5 | 205.6 | 108.2 | 226.4 | 0.40 | 113.5 | 4.02 | 181.2 | 0.137 | 0.218 | 86.92 | 267.0 | 170.0 | 340.8 |
| Q1 | 277.7 | 86.4 | 95.9 | H1: | 105.5 | 273.4 | 187.7 | 189.0 | 107.4 | 231.4 | 0.39 | 111.7 | 4.01 | 180.8 | 0.141 | 0.215 | 87.46 | 270.6 | 169.7 | 342.4§ |
| Q2 | 266.9 | 105.4 | 109.0 | 171.6 | 130.4 | 261.7 | 202.0 | 213.7 | 108.3 | 232.2 | 0.40 | 113.4 | 4.00 | 180.3 | 0.137 | 0.221 | 87.35 | 268.7 | 169.8 | 348.6§ |
| Q3 | 237.5 | 100.0 | 143.4 | H2: | 128.7 | 258.3 | 188.0 | 200.0 | 110.1 | 225.1 | 0.40 | 112.5 | 4.02 | 181.3 | 0.135 | 0.225 | 87.48 | 268.3 | 169.9 | 356.5§ |
| Q4 | 262.1 | 103.5 | 116.2 | 174.3 | 119.8 | 251.1 | 173.4 | 390.4 | 106.9 | 216.7 | 0.41 | 116.5 | 4.04 | 182.2 | 0.135 | 0.210 | 85.40 | 260.4 | 170.6 | 356.7§ |
| 1958: | | | | | | | | | | | | | | | | | | | | |
| Q1 | 241.8 | 93.7 | 105.8 | H1: | 117.2 | 277.1 | 159.3 | 179.6 | 109.2 | 217.7 | 0.39 | 110.3 | 4.02 | 181.3 | 0.131 | 0.201 | 84.99 | 255.6 | 167.1 | 359.7§ |
| Q2 | 231.0 | 102.5 | 92.1 | 175.0 | 108.0 | 266.8 | 180.0 | 213.5 | 118.3 | 210.1 | 0.40 | 114.5 | 4.03 | 181.7 | 0.130 | 0.192 | 84.85 | 252.9 | 168.5 | 365.9§ |
| Q3 | 228.5 | 99.9 | 97.0 | 172.7 | 124.2 | 257.5 | 181.1 | 175.9 | 120.8 | 211.0 | 0.39 | 111.4 | 3.97 | 179.0 | 0.130 | 0.186 | 84.55 | 251.1 | 165.7 | 373.7§ |

*[1] Common excavation plus other expressed as equivalent common excav. *[2] Portland cement concrete plus other expressed as equivalent port. cem. concr. *• Fixed quantities used for establishing price trend *† Prices for base year index. *§ Last month of quarter * Based on 1925-29=100

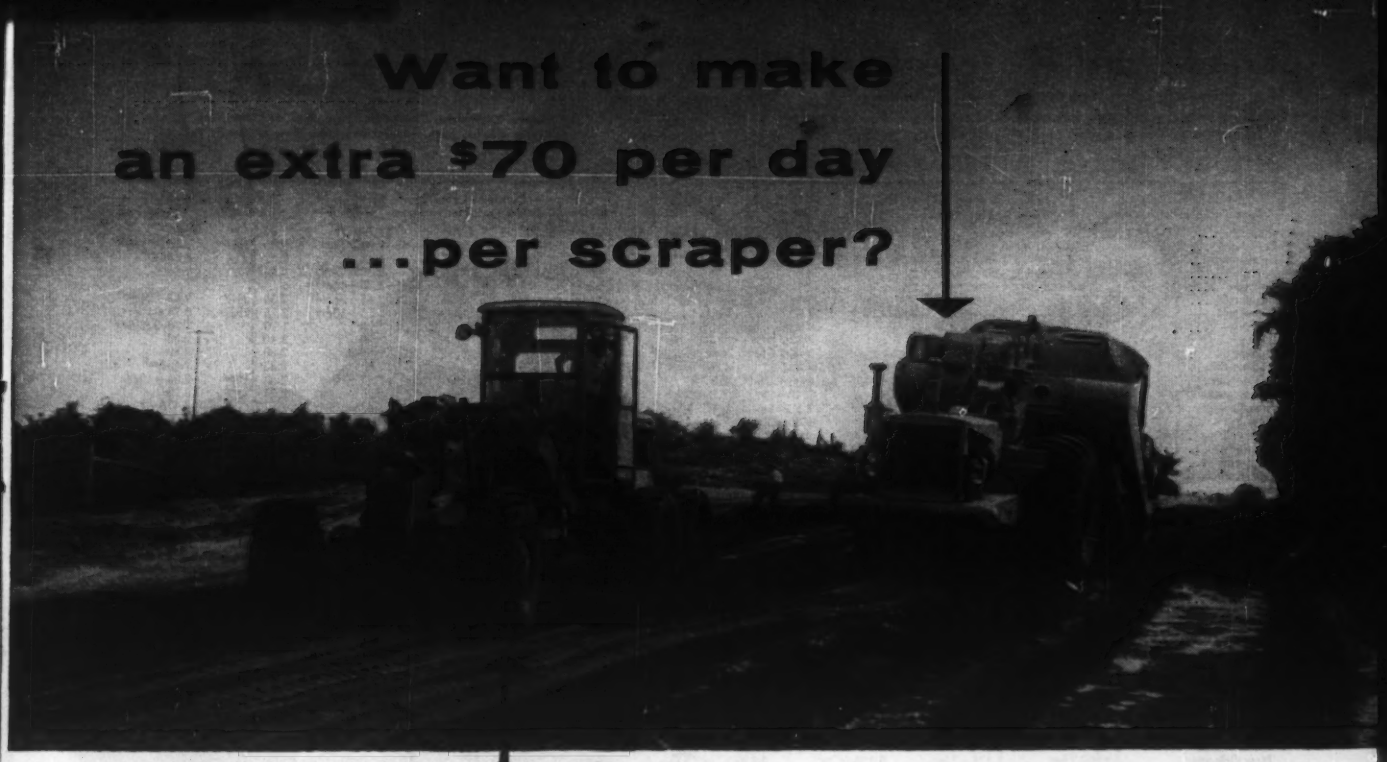



## Irrigation and Hydro Cost Indexes

US Bu Reclamation, Denver Office, Indexes, 1949-51 = 1.0

| Class of Construction | July 1940 | October 1948 | October 1949 | October 1956 | 1957 Jan. | 1957 Apr. | 1957 July | 1957 Oct. | 1958 Jan. | 1958 Apr. | 1958 Jul. | 1958 Oct. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Composite index | 0.47 | 0.84 | 1.02 | 1.24 | 1.24 | 1.27 | 1.29 | 1.30 | 1.30 | 1.28 | 1.24 | 1.2§ |
| Dams, earth | 0.51 | 0.98 | 1.05 | 1.17 | 1.15 | 1.19 | 1.22 | 1.22 | 1.23 | 1.17 | 1.10 | 1.10 |
| Dams, concrete | 0.47 | 0.81 | 1.02 | 1.12 | 1.11 | 1.14 | 1.15 | 1.16 | 1.16 | 1.14 | 1.12 | 1.12 |
| Pumping plants, bldg & equip | 0.48 | 0.76 | 0.97 | 1.43 | 1.43 | 1.45 | 1.46 | 1.46 | 1.46 | 1.41 | 1.42 | 1.46 |
| struct, reinf conc, & improv | 0.44 | 0.75 | 1.00 | 1.31 | 1.31 | 1.32 | 1.34 | 1.35 | 1.36 | 1.30 | 1.32 | 1.33 |
| equipment | 0.55 | 0.77 | 0.94 | 1.56 | 1.56 | 1.58 | 1.58 | 1.58 | 1.58 | 1.59 | 1.60 | 1.63 |
| pumps & prime equip | | | 0.94 | 1.64 | 1.64 | 1.66 | 1.66 | 1.66 | 1.66 | 1.67 | 1.68 | 1.71 |
| access elec & misc equip | | | 0.97 | 1.41 | 1.41 | 1.43 | 1.44 | 1.44 | 1.44 | 1.44 | 1.45 | 1.49 |
| steel penstocks, disch pipes | | 0.69 | 0.94 | 1.66 | 1.66 | 1.68 | 1.72 | 1.72 | 1.72 | 1.66 | 1.63 | 1.69 |
| Canals | 0.47 | 0.86 | 1.02 | 1.18 | 1.18 | 1.20 | 1.21 | 1.21 | 1.19 | 1.13 | 1.13 | 1.13 |
| Conduits, tunnels, free flow, concrete lined | | 0.82 | 0.97 | 1.24 | 1.24 | 1.26 | 1.29 | 1.30 | 1.30 | 1.25 | 1.28 | 1.29 |
| Laterals and drains | 0.41 | 0.76 | 1.01 | 1.26 | 1.26 | 1.31 | 1.32 | 1.35 | 1.32 | 1.26 | 1.27 | 1.30 |
| Primary roads | 0.48 | 0.82 | 1.06 | 1.19 | 1.19 | 1.23 | 1.25 | 1.25 | 1.24 | 1.22 | 1.21 | 1.23 |
| Secondary roads, unsurfaced | 0.50 | 0.86 | 1.08 | 1.11 | 1.13 | 1.18 | 1.21 | 1.20 | 1.19 | 1.18 | 1.18 | 1.19 |
| Bridges, steel | 0.46 | 0.85 | 1.01 | 1.47 | 1.47 | 1.48 | 1.52 | 1.52 | 1.52 | 1.46 | 1.44 | 1.47 |
| Power plants, hydro, bldg & equip | 0.51 | 0.78 | 0.96 | 1.44 | 1.44 | 1.46 | 1.47 | 1.47 | 1.48 | 1.42 | 1.44 | 1.49 |
| struct, reinf conc, & improv | 0.45 | 0.75 | 1.01 | 1.30 | 1.30 | 1.31 | 1.33 | 1.34 | 1.36 | 1.30 | 1.33 | 1.34 |
| equipment | 0.55 | 0.78 | 0.93 | 1.53 | 1.53 | 1.55 | 1.55 | 1.56 | 1.54 | 1.55 | 1.58 | 1.60 |
| turbines & generators | 0.56 | 0.80 | 0.94 | 1.57 | 1.57 | 1.58 | 1.58 | 1.58 | 1.58 | 1.59 | 1.60 | 1.62 |
| access elec equip | 0.54 | 0.73 | 0.92 | 1.44 | 1.44 | 1.46 | 1.48 | 1.48 | 1.48 | 1.48 | 1.49 | 1.52 |
| misc equip | 0.51 | 0.73 | 0.95 | 1.43 | 1.43 | 1.44 | 1.44 | 1.44 | 1.40 | 1.40 | 1.40 | 1.44 |
| Concrete pipe lines | 0.53 | | | | | | 1.28 | | 1.29 | 1.28 | 1.32 | 1.32 |
| Transm switchyards & substa | 0.54 | 0.76 | 0.94 | 1.59 | 1.59 | 1.60 | 1.60 | 1.61 | 1.60 | 1.58 | 1.56 | 1.60 |
| Transm lines, wood pole 115 kv | 0.52 | 0.99 | 1.11 | 1.11 | 1.09 | 1.09 | 1.10 | 1.13 | 1.16 | 1.18 | 1.21 | 1.23 |
| Transm lines, steel tower 230 kv | | | | 1.39 | 1.37 | 1.39 | 1.43 | 1.43 | 1.43 | 1.42 | 1.40 | 1.44 |
| Permanent genl property, bldgs | 0.44 | 0.68 | 0.93 | 1.30 | 1.30 | 1.30 | 1.31 | 1.31 | 1.30 | 1.30 | 1.32 | 1.33 |

Based on combined costs of material and labor furnished by the contractor, and material and labor furnished by the government on US bureau of Reclamation projects in 17 western states and Alaska




**Bigger graders can speed-up your big-yardage dirtmoving**

The saving of just a few seconds on your dirtmoving cycle is mighty important... especially on your big-yardage jobs. For example, say you're working scrapers that haul 20 pay-yards, and each moves 100 loads per 10-hr. day. That's an average cycle of 6 minutes. When you shave just 33 seconds off this average cycle, you get 10% more output, or 110 payloads per scraper each day.

Those 10 extra loads give you 200 *bonus* pay-yards, at no extra cost. Even with dirt at the minimum bid price of 35¢ per yard, that's an extra $70.00 a day in the profit column for *each scraper* you use!

**Here's how you get it**

Your scrapers always work faster when haul roads are kept smooth, and job is well drained. They move more loads when fills are firm and graded... when borrows are kept bladed for easier loading.

For most profitable big-yardage dirtmoving you need graders that can keep pace with your big scraper fleet. You need big, heavy, 160 hp or larger graders to help you save valuable seconds on each dirtmoving cycle... to help you move more 20-yd. loads per hour.

On the fill, your bigger grader spreads a full 12′ or 14′ blade-load of dirt at speeds to 7.5 mph... quickly grades for speedy compaction... levels footing for on-the-run dumping of next lift. In the cut, it smooths-out ruts and bumps... scarifies tough spots... blades down heavy side banks... casts out ditch-bank corner material... maintains drainage for extra days production during rainy seasons.

With its extra weight and power, your 160+ hp grader handles all jobs fast. It stays ahead on production, so whenever needed, it can smooth haul roads to keep your dirtmovers "highballing". Working faster, blading more yardage, your bigger graders smooth the way for faster earthmoving at every point in the cycle... for bigger output and extra earnings from every scraper on your job. They also cut accurately, to speed-up your finishing, get you off the current job, ready for the next one faster. And they help you get your final settlement quicker.

**Fewer machines... lower cost**

To do the same amount of work with ordinary 115 hp graders, you need MORE MACHINES... MORE MANPOWER... MORE TIME. And extra graders slow-down your dirtmovers and compactors.

You'll get more work done faster — less congestion — with Adams* 160 hp or 190 hp Model 660 graders. And you'll get it done at lower cost. These heavy-duty LeTourneau-Westinghouse graders give you the extra power, weight, and speed you need, to handle your future big-volume contracts faster. They'll give you up to 30% more output for only about 8% increase in ownership and operating costs.

**Two extra-output models**

Adams 660 is available with 2 power and drive options: (1) 160 hp GM or Cummins engine, constant-mesh transmission with 8 speeds forward (to 26.0 mph), 4 reverse (to 13.7 mph), plus 3 optional creeper speeds; or (2) POWER-*Flow** 660 with 190 hp GM or Cummins engine, torque converter, 4 speed ranges forward, 0.0 to 27.4 mph. Call or write for an immediate demonstration.

*Trademark G-1361-DC-3

**LeTOURNEAU-WESTINGHOUSE COMPANY,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

**Where quality is a habit**

# Labor and Materials Prices

**Monthly Market Quotations by ENR Field Reporters**

**See following ENR issues for OTHER PRICES**

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Dec. 4; Next, Jan. 8.
- Iron and Steel Products, pipe: Last, Dec. 11; Next, Jan. 15.
- Wood Products, Glass, Explosives, Chemicals: Last, Dec. 18; Next, Jan. 22.
- Wage Rates, Building Board, Lath, Insulation: Last, Nov. 27; Next, Jan. 29.

## HOURLY WAGE RATES—Base rate + fringe benefits

| | Bricklayers | Carpenters | Struct. Iron Workers | Hoisting Engineers | Plasterers | Electrical Workers | Steamfitters | Common Labor: Building | Common Labor: Heavy Cons | Truck drivers: 1½ T | Truck drivers: under 4 cy | Truck drivers: over 4 cy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $3.75 | $3.05 | $3.30+7½[d] | $3.225 | $3.125 | $3.50+10[c] | $3.35+25[d] | $1.70 | $1.70 | $1.70 | $1.80 | $2.05 |
| Baltimore | 3.95+10[cd] | 3.20+7½[cd] | 3.90+7½[cd] | 3.80/3.95+10[cdG] | 3.60+7½[cd] | 3.425+7½[cd] | 3.30+7½[d] | 2.05+7½[d] | 2.05+7½[d] | 2.00+7½[d] | 2.00+7½[d] | 2.10+7½[dHH] |
| Birmingham | 3.85 | 2.95 | 3.35+10[dK] | 2.77[r] | 3.17 | 3.425 | 3.40+10[dK] | 1.75 | 1.85 | 1.83 | 2.02[rT] | 2.35[GG] |
| Boston | 3.80+20[dv] | 3.40+10[cd] | 3.90+20[dm] | 3.77½+10[d] | 3.85+35[d] | 3.70+12[dR] | 3.20+10[cd] | 2.55+7[cd] | 2.60+7[cd] | 2.395[r] | 2.45[bb] | 2.65[bb] |
| Chicago | 3.87½+7½[c] | 3.65+20[dm] | 4.00+16[c] | 3.55+5[c] | 3.70+23[c] | 3.90+12[c] | 3.75+22[dm] | 2.77½+7½[c] | 2.77½+7½[c] | 2.36+15[cmm] | ..... | ..... |
| Cincinnati | 3.85 | 3.57½ | 3.60+10[cd] | 3.375/3.60 | 3.62½ | 3.82+44[N] | 3.80+9½[c] | 2.62½ | 2.525 | 2.45+2½[LL] | 2.55+2½[LL] | 2.65+2½[LL] |
| Cleveland | 3.805+10[c] | 3.83 | 3.73+10[c] | 3.83 | 3.83 | 3.855 | 3.64+15[m] | 3.10 | 3.005 | 2.75+10[cv] | 2.75+10[cv] | 2.75+10[cv] |
| Dallas | 3.875 | 3.175 | 3.30+7½[c] | 3.325 | 3.625+13[cv] | 3.375+7½[c] | 3.375+8½[c] | 1.70 | 1.70 | 1.70 | 1.70 | 1.70/2.625[vv] |
| Denver | 3.75 | 3.34 | 3.175+7½[cd] | 3.05 | 3.475+12½[cbb] | 3.60+14[c] | 3.55+10[cd] | 2.17 | 2.17 | 2.30 | 2.40 | 2.55 |
| Detroit | 3.77+38[dH] | 3.40+40[cv] | 3.75+22½[c] | 3.47+25[c] | 3.66+34[cm] | 3.85+35½[c] | 3.73½+14[d] | 2.65+33[c] | 2.80+10[c] | 2.80 | 2.80 | 2.80 |
| Kansas City | 3.85 | 3.325 | 3.40 | 3.345 | 3.625 | 3.60+28[O] | 3.60+12[cm] | 2.355 | 2.405 | 2.33[m] | 2.33[rr] | 2.405[m] |
| Los Angeles | 3.85+10[cbb] | 3.375+10[cd] | 3.85+20½[cbb] | 3.41+10[cd] | 4.00+30[cH] | 4.15[r] | 3.80+38½[c] | 2.68+10[cd] | 2.68+10[cd] | 2.83+10[cd] | 2.83+10[cd] | 3.01+10[cd] |
| Minneapolis | 3.725 | 3.30 | 3.47 | 3.30 | 3.40+23[cG] | 3.38+38[cm] | 3.42+20[c] | 2.55 | 2.55 | 2.55 | 2.55[r] | 2.70[r] |
| New Orleans | 3.525+5[c] | 3.00 | 3.30+7½[c] | 3.125+7½[c] | 3.12+5[c] | 4.475+7½[c] | 3.40+15[c] | 1.75 | 1.75 | 2.475+7½[cd] | 2.475+7½[cd] | 2.475+7½[cd] |
| New York | 4.45+38[dv] | 4.10+33½[dJ] | 4.30+36[cv] | 4.35+35[cbb] | 4.25+52[cA] | 3.90+51[cvT] | 4.30+47½[cL] | 3.00+24½[T] | 3.00+24½[T] | 2.21+22½[CC] | 3.025+23½[dvv] | 3.025+23½[dvv] |
| Philadelphia | 4.00+17[c] | 3.635 | 4.23+17½[dM] | 2.595/4.23 | 4.05+15[c] | 4.07½+16[cv] | 4.10+16½[c] | 2.35 | 2.65 | 2.315/2.45+15½[cvv] | | |
| Pittsburgh | 4.20+20[dm] | 3.675+10[c] | 4.00+20[dm] | 3.64+10[cd] | 3.825+20[dm] | 4.35+32½[cd] | 4.00+20[dm] | 2.45+20[dm] | 2.30+20[dm] | 2.37+20[dm] | 2.51+20[dm] | 2.61+20[dm] |
| St. Louis | 3.90+31½[r] | 3.575+10[c] | 3.80+7½[c] | 3.675[r] | 3.80+7½[c] | 3.97½+29.8[cd] | 3.92½+27½[c] | 2.625+10[c] | 2.652+10[c] | 2.65+7½[cvv] | 2.70+7½[c] | 2.70+7½[c] |
| San Francisco | 3.95+52½[cdd] | 3.30+32½[dmm] | 3.85+20[dm] | 3.405+10[c] | 3.74+52½[cv] | 3.91+34½[cO] | 3.70+46[cR] | 2.695+10[c] | 2.695+10[c] | 2.81+10[cvv] | 2.75+10[cvv] | 2.89+10[cvv] |
| Seattle | 3.90+10[cd] | 3.13+10[cd] | 3.40+10[cd] | 3.29+20[dm] | 3.40+10[cd] | 3.65+26[cX] | 3.70+23[cT] | 2.70+10[cd] | 2.70+10[cd] | 2.87+17½[cvvv] | 2.87+17½[cvv] | 3.07+17½[cvv] |
| Montreal | 2.20+5[cjj] | 2.10+5[cjj] | 2.25+5[cjj] | 2.00+5[cjj] | 2.35+5[cjj] | 2.20+5[cjj] | 2.32+5[cjj] | 1.50+3[cjj] | 1.50+3[cjj] | 1.50+3[cJJ] | 1.50+3[cJJ] | 1.50+3[cJJ] |
| Toronto | 2.95+12[cj] | 2.65+11[cj] | 2.55+10[cj] | 2.75+11[cj] | 2.80+19[cjj] | 3.00+12[cj] | 2.79+17[cjj] | 1.70+7[cj] | 1.70+7[cj] | 1.75+7[cj] | 1.75+7[cj] | 1.75+7[cj] |

| | Tractor Operators Incl. bulldozers: 34-49 hp | 70-100 hp | 100 & over | Tractor scraper: 15-18 cy | Power cranes & shovels: ½ cy | ¾ cy | Motor grader oper | Air comp oper | Air tool oper |
|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $2.70 | $2.85 | $2.83 | $2.70 | $3.225 | $3.375 | $2.70 | $2.625 | $1.82 |
| Baltimore | 3.40/3.55+10[cdv] | 3.40/3.55+10[cdv] | 3.40/3.55+10[cdv] | 3.40/3.55+10[cdv] | 3.80/3.95+10[cdv] | 3.80/3.95+10[cdv] | 3.40/3.55+10[cdv] | 2.85/3.00+10[cdv] | 2.10+7½[cd] |
| Birmingham | 2.79 | 2.79 | 2.79 | 2.93 | 2.93 | 2.93 | 2.89 | 2.52 | 1.90 |
| Boston | 3.40+10[cdv] | 3.40+10[cdv] | 3.40+10[cdv] | 3.40+10[cdv] | 3.775+10[cd] | 3.775+10[cd] | 3.40+10[cd] | 3.325+10[cd] | 2.60+7[cbb] |
| Chicago | 3.30+5[cd] | 3.45+5[cd] | 3.20+5[cd] | 3.00+5[cd] | 3.90+5[cd] | 3.90+5[cd] | 3.25+5[cd] | 3.10+5[cd] | ..... |
| Cincinnati | 3.375 | 3.375 | 3.375 | 3.375 | 3.375 | 3.60 | 3.60 | 3.60 | 3.60 |
| Cleveland | 3.58 | 3.58 | 3.58 | 3.58 | 3.83 | 3.83 | 3.58 | 3.455 | 3.455 |
| Dallas | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.70/2.625[vv] | 1.775/2.00[vv] |
| Denver | 2.30 | 2.90 | 2.90 | 2.90 | 3.05 | 3.05 | 2.90 | 2.90 | 2.45 |
| Detroit | 3.50+10[cd] | 3.50+10[cd] | 3.50+10[cd] | 3.50+10[cd] | 3.50+10[cd] | 3.50+10[cd] | 3.50+10[cd] | 3.195+10[cd] | 2.78+25[cXX] |
| Kansas City | 2.65 | 3.10[r] | 3.10[r] | 3.10[r] | 3.345 | 3.345 | 3.10 | 3.345[vv] | 2.45 |
| Los Angeles | 3.71+10[cd] | 3.71+10[cd] | 3.71+10[cd] | 3.81+10[cd] | 3.81+10[cd] | 3.81+10[cd] | 3.81+10[cd] | 1.93+10[cd] | 2.89+10[cd] |
| Minneapolis | 2.93 | 3.15[r] | ..... | 3.15 | 3.37[r] | 3.63[r] | 2.93 | 2.82 | 2.70 |
| New Orleans | 3.125+7½[cd] | 3.125+7½[cd] | 3.125+7½[cd] | 3.125+7½[cd] | 3.125+7½[cd] | 3.125+7½[cd] | 3.125+7½[cd] | 2.475+7½[cd] | 1.85 |
| New York | 3.725+30[cT] | 3.725+30[cT] | 3.725+30[cT] | 3.85+31[cT] | 4.60+37[cT] | 4.60+37[cT] | 3.85+31[cT] | 3.85+31[cvv] | 3.45+25½[cXX] |
| Philadelphia | 2.595/4.23+10[cd] | | | 2.595/4.23+10[cd] | 2.595/4.23+10[cd] | | 2.595/4.23+10[cd] | 2.595/4.23+10[cd] | 2.35+15[cd] |
| Pittsburgh | 3.44+10[cd] | 3.44+10[cd] | 3.44+10[cd] | 3.44+10[cd] | 3.64+10[cd] | 3.64+10[cd] | 3.64+10[cd] | 3.15+10[cd] | 2.30+20[dm] |
| St. Louis | 3.675[r] | 3.675[r] | 3.675[r] | 3.675[r] | 3.675[r] | 3.675[r] | 3.675[r] | 3.125[r] | 3.125[r] |
| San Francisco | 3.70+10[cvv] | 3.70+10[cvv] | 3.70+10[cvv] | 3.70+10[cvv] | 3.85+10[cvv] | 3.85+10[cvv] | 3.75+10[cvv] | 3.10+10[cvv] | 2.955+10[cvv] |
| Seattle | 3.26+20[dm] | 3.26+20[dm] | 3.26+20[dm] | 3.26+20[dm] | 3.63+20[dm] | 3.63+20[dm] | 3.35+20[dm] | 2.99+20[dm] | 2.90+10[cd] |
| Montreal | 1.70+4½[cJJ] | 1.93+4½[cJJ] | 1.93+4½[cJJ] | 1.93+4½[cJJ] | 2.19+5½[cJJ] | 2.19+5[cJJ] | 1.93+4½[cJJ] | 1.80+4½[cJJ] | 1.80+4½[cJJ] |
| Toronto | 2.25+9[cj] | 2.25+9[cj] | 2.25+9[cj] | 2.25+9[cj] | 2.75+11[cj] | 2.75+11[cj] | 2.25+9[cj] | 2.30+9[cj] | 2.30+9[cj] |

**ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.764, ENR Common Average $2.482**
**R: revised.**

[a] 6 hr day. [b] 7 hr day. [c] 5% vac. stamp fund plus 12¢ WF for bricklayers; 4% VF for electricians plus 10¢ WF, 1% PF. [d] H & WF. [e] 10¢ H & W. 10¢ VF. [f] 10¢ H & W. 7½¢ VF. [g] 2¢ Ed, 7½¢ H & W. [h] 7½¢ WF, 1¢ AF [i] WF. [j] Inc. 4% VF; 1% PF pd by employer. [k] 10¢ WF, 10¢ VP, 8¢ HP. [l] 4% VF. [m] 10¢ WF, 10¢ PF. [n] 7% V & Hol., 3% H & W, 1% PF. [o] lower rates, straight time; other broken. [p] 3% WF, 3% PF+10¢ in lieu of pd. hol. [q] 10¢ WF, 6% V & H, 3% PF. [r] 4% WF, 20¢ PF. [s] 8% W & PF, 4% VF, 1% NC 1% JI, plus 6 PH. [t] Inc. 10¢ WF. [u] 10¢ WF, 1% PF, ½% apprent. [v] 1 drum: 2 drums, 2.93. [w] 20¢ VF, 17½¢ PF, 3¢ Prom., 12¢ W. [x] VF. [y] 2-axle, 10 wh. 3-axle $2.45; Euclid $2.66. [z] 10¢ WF, 3% HP, 18¢ V & H. [A] 15¢ WF, 15¢ PF, 20¢ BF. [B] 7½¢ VP, 5¢ PF, 1½¢ Ed. F. [C] 10¢ H & W & Ins., 7% V & H. [D] 4% VF, 10% WF, 1% PF. [E] 20¢ WF, 30¢ VF. [F] Plus $4 per day annuity contrib. [G] 10¢ WF, 10¢ VF, 3¢ prom. [H] 10¢ WF, 10¢ VP, 3% PF, 2% PH. [I] 8¢ H & WF, 5¢ advtg. [J] 8% WF, 6 PH, 3% PF. [K] 7½¢ WF, 2½¢ AF. [L] 3% WF, 3% PF, 3% VF, 1% Ed. F. [M] 10½¢ WF, 7½¢ PF. [N] 1% PF. [O] 10¢ WF, 1% NECA, 4¢ AF, 10¢ VF. [P] 10¢ H Ins., 7½¢ PF, 5¢ VF. [Q] 2 drums; 1 drum $3.10/3.25+10¢ WF. [R] 10¢ H & WF, 2¢ admin. 1¢ apprent. [S] 5¢ H & WF, 7¢ PF. [T] H & W, VF. [U] 10¢ WF, 4% VF, 1% PF, 5¢ Ind. F. [V] 4% WF, 4% PF. [W] 7½¢ WF, 1½¢ Ed. F. [X] 7½¢ WF, 18¢ VF, 3½¢ PF. [Y] 10¢ H & W. 9¢ PF. [Z] intermediate. [aa] 7¢ WF, 15. PF. [bb] highway bld contr.: $3.325+10¢ WF. [cc] less than 2-T. [dd] 17½¢ WF, 20¢ PF, 10¢ PH, 8¢ Jt Bd. [ee] up to 6 cy. [ff] 10¢ H & W, 8¢ PF. [gg] 6-8 cy. [hh] 7½¢ H & WF, 5¢ indus. prom. [ii] 4% WF, 4% PF, 8 PH. [jj] 2% VF. [kk] 10¢ HW, 10¢ P, ½¢ AF. [ll] 16¢ HW, 10¢ PF, 8¢ Trust F, 8¢ Trade Prom. [mm] 10¢ W, 20¢ 2½¢ Gen. Ben. [nn] 10¢ VF, 2¢ EF. [oo] 10¢ WF, 3¢ EF. [pp] higher rates are union, other taken from min. wage approved by County Comm. Court. [qq] flatbed. [rr] under 10 cy. [ss] over 10 cy. [vv] VF. [ww] single. [xx] 7½¢ H&W, 8¢ PF. [yy] 7½¢ H&W, 10¢ PF. [BB] 3% WF, 2% PF. [CC] 11¢ WF, 11½¢ PF, 11 PH. [FF] 1½ to 3 T. [GG] up to 5 t; over 5 T $2.22. [HH] 5¢ H&W, 2½¢ PF. [JJ] Incl. 2% VF. [KK] 10¢ H&W, 10¢ PF, 5¢ VP. [LL] plus $2.25 wk WF. [MM] 9% WF, 6 PH.

## BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

| | GYPSUM PLASTER BOARD tapered edge per Msq ft ½" | ½" | GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48" | GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8' | FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed | ½" T&G | FIBER BOARD INSULATION sq edge, paint per Msq ft ½" | MINERAL WOOL INSULATION loose, per 40-lb bag | 3" batts per M sf | GLASS FIBER INSULATION loose, per 40-lb bag | 3" batts per M sf | ALUMINUM FOIL 60# Kraft Expansible 1 side foil per roll of 250 s. f. | Blanket 2 layers foil per Msq. ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $70.00 | $80.00 | $43.50 | $70.00 | $70.00 | $127.00 | $70.00 | $1.80[s] | $60.00 | $3.00[b] | $75.00 | ..... | ..... |
| Baltimore | 61.70[f] | 45.55[f] | 54.25[f] | 55.35[f] | 65.00[f] | 108.50[f] | 69.00[f] | 1.50 | 66.50 | 1.50 | 45.00 | $4.00[g] | $33.50 |
| Birmingham | 68.90 | 57.00 | 47.77 | 75.00 | 68.00 | 136.50 | 81.00 | 1.40 | 70.00 | 1.60 | 72.00 | 3.13[g] | ..... |
| Boston | 60.00[m] | 50.00[m] | 38.00[m] | 60.00[m] | 65.00[m] | 130.00[m] | 79.00[kk] | 1.45[k] | 75.00 | ..... | 82.00 | 5.20 | 53.50[g] |
| Chicago | 67.00 | 54.00 | 45.00 | 69.00 | 67.00 | 132.00 | 67.00 | 1.55 | 80.00 | ..... | 83/85[t] | 5.25[g] | ..... |
| Cincinnati | 48.00[w] | 42.85[w] | 32.05[w] | 51.10[w] | 70.00[w] | 125.00[w] | 73.50[w] | 1.30 | 65.00 | 1.30 | 70.80 | 3.13[g] | 30.00 |
| Cleveland | 62.00 | 56.50 | 41.50 | 65.00 | 75.00 | 126.00 | 80.00 | 1.35/1.50 | 72.00 | ..... | 83.00[v] | 17.00[g] | 65.00 |
| Dallas | 55.00 | 52.50 | 42.50 | 60.00 | 68.50 | 118.00 | 68.50 | 2.00 | 62.25 | 1.45 | 66.15 | 4.50[gA] | ..... |
| Denver | 62.00 | 54.50 | 41.00 | 62.00 | 75.90 | 136.00 | 74.90 | ..... | 71.00[u] | 1.50[u] | 80.00[u] | 11.00[r] | 21.00 |
| Detroit | 64.00 | 53.00 | 37.00 | 68.00 | 60.50 | 100.50 | 60.50 | ..... | ..... | 1.50[t] | 82.00 | ..... | ..... |
| Kansas City | 65.00 | 55.00 | 40.00 | ..... | 73.00 | 115.00 | 75.00 | 1.40 | 75.00 | 2.00 | 75.00 | 3.00[g] | 53.92[r] |
| Los Angeles | 66.00 | 60.50 | 0.33[z] | 64.50 | 75.00 | 125.00 | 80.00 | ..... | 85.00 | 1.35[k] | 84.00 | 4.40[g] | ..... |
| Minneapolis | 75.00 | 65.00 | 0.41[z] | 80.00 | 78.00 | 140.00 | 75.00 | 2.00[y] | 80.00 | 1.80 | 80.00 | 5.50 | ..... |
| Montreal | 56.00 | 47.40 | $6/39 | 53.00 | 63.25 | ..... | 63.00 | 1.50 | 66.00 | 1.60 | 66.00 | 9.00[g] | 58.00 |
| New Orleans | 60.00 | 50.00 | 45.00 | 60.00 | 75.00 | 140.00 | 72.50 | 1.75 | 65.00[r] | ..... | ..... | ..... | ..... |
| New York | 55.25 | 47.25 | 36.25 | 54.25 | 75.00 | 130.00 | 75.00 | 1.55[k] | 68.50 | 1.55[k] | 68.50 | 4.35[g] | 52.50[r] |
| Philadelphia | 50/55 | 43/53 | 36.40 | 49/54 | 68/73 | 105/110 | 55/65 | ..... | 60/70 | ..... | 70/75 | 5.60/6.34 | 40/50 |
| Pittsburgh | ..... | 65.00 | 40.00 | ..... | 62.50 | 102.50 | 57.50 | 1.05[k] | 55.00[k] | 1.05[k] | 55.00[k] | 3.80[dg] | 39.50 |
| St. Louis | 67.00 | 56.50 | 40.00 | 70.00 | 76.50 | 121.50 | 80.00 | 1.35[y] | 65.00 | 1.65 | 65.00 | 4.50[dg] | ..... |
| San Francisco | 57.00 | 48.00 | 0.35[z] | 58.00 | 70.00 | 112.00 | 69.00 | 1.60 | 66.50 | 1.60 | 66.50 | 4.95 | 55.00 |
| Seattle | 66.30 | 57.65 | 51.05 | 65.00 | 74.50 | 125.00 | 73.50 | 1.60[z] | 73.00 | 1.90[cp] | 80.00[cq] | 4.25 | 46.50 |
| Toronto | 55.00 | 47.00 | 38.00 | 64.50 | 75.00 | ..... | ..... | 1.80 | 63.50 | ..... | 82.50 | 16.00[g] | 48.00 |

[cc] F.o.b. warehouse. [a] Semi thick. [b] 30# bag. [c] 12" to 24" width. [d] 40# kraft paper, 5 Msf, 100/500 rolls. [e] 20# sq ft bag, 4" thick. [f] Full trailer loads. [g] 60# kraft paper backing 400 rolls or over. [h] LCL. [j] 40¢. [j] 80¢. [k] 2". [m] 10 ton quantities. [n] Distributor's siding. [o] Per Msf roll. [p] 32# bag. [q] 500 sf. [r] Per cwt. [s] 35# bag. [t] 25# bag. [u] Flame proof $75. [w] F.o.b. city. [x] Sq. yd. [y] 30# bag. [z] Spun rock wool, 3½ cu ft bags. [A] 650 sf.

## MEXICO CITY WAGES & PRICES

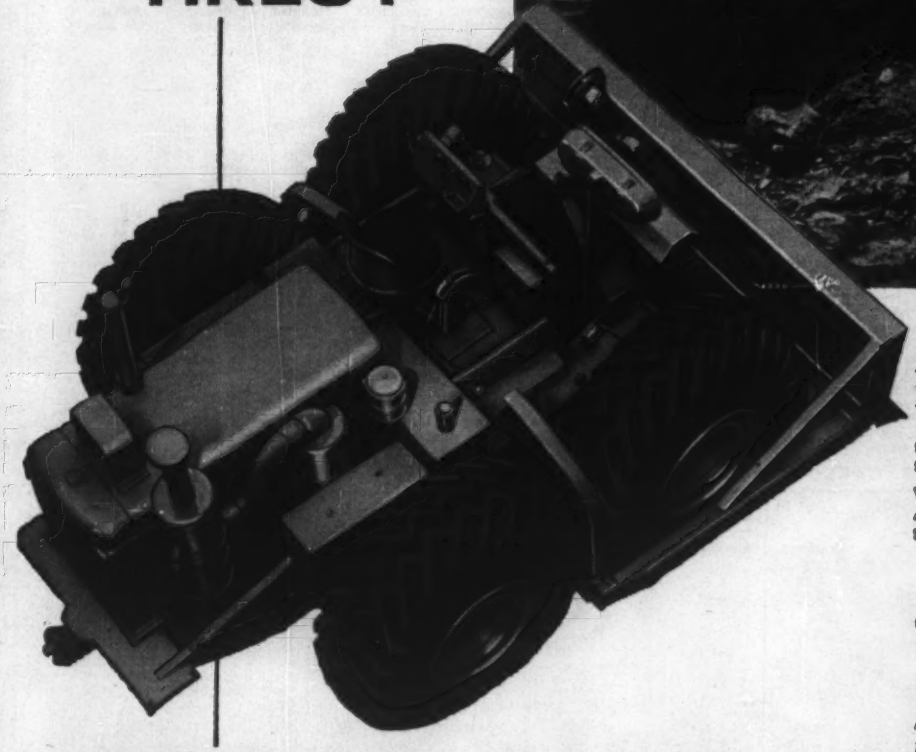
| Wages, per 8 hr day, av per hr | | Nov. '58 | Dec. '58 |
|---|---|---|---|
| Common labor, building (peons) | | 1.57 | 1.57 |
| | heavy const (peons) | 2.00 | 2.00 |
| Skilled labor, | carpenters 1 cl | 3.25 | 3.25 |
| | bricklayers 1 cl | 2.87 | 2.87 |
| | struct. ironworkers | 4.38 | 4.38 |

| Pesos, F.o.b. City | Nov. '58 | Dec. '58 |
|---|---|---|
| Struct. steel shapes, fob Monterrey | | |
| I-beams, 3 x 3 x 4" per metric ton | 2400 | 1942 |
| Reinf. steel, corrugated rods, per ton | | |
| ⅝"-¾" x 11 meters | 1800 | 2000 |
| ¾"-1" x 11 meters | 1750 | 2000 |

| Gravel, truckload at 3½ cu meters | Nov. '58 | Dec. '58 |
|---|---|---|
| Blue gravel | 84.00 | 80.00 |
| Rose gravel | 65.00 | 75.00 |
| Cement, std. port. (Tolteca) | 230.00 | 255.00 |
| Lumber, 3/4" pine per M ft. | 1700.00 | 2200.00 |
| 1½" pine per M ft. | 1900.00 | 2100.00 |

# TRACKS?

# TIRES?



**Heavy-duty Tournatractor** — 210 hp — speeds to 17.2 mph forward, 7.2 mph reverse — power-shift constant-mesh transmission with torque converter — multiple-disc air brakes with 3,762 sq in. of braking surface — skid steer — tires: standard 21.00-25 16-ply, optional wide base 26.5-25 14-ply; choice of traction or rock service treads.

**Work tool attachments** — bulldozer — Angledozer® — root rake — push-block — tree stinger — power-control-unit.

# which type of tractor is best?

The *job* is the key to your answer. You have to deal with 2 types of tractor work on every earthmoving contract: (1) concentrated pushing, dozing, and hauling in restricted areas, and (2) scattered hit-and-run work over the entire work site (or *several* work sites).

**Q.** Which does a better job on these basically different types of work: crawlers or rubber-tired tractors?

**A.** For necessary "stay put" jobs in limited areas, crawlers may prove best . . . because of their greater lugging power at slow speeds. This means heavy short-haul work, push-loading big scrapers, dozing in mud or rock-filled earth. BUT tractors-on-rubber are better for those "hit-and-run" jobs, where speed and mobility mean extra profit. Such jobs include push-loading, leveling scattered fill, towing "part-time" scrapers, stockpiling, clean-up, maintenance of haul and access roads, finish-grading, emergency push-pull anytime, anywhere, on your project.

**Q.** What's the best ratio of crawlers-to-rubber for best job efficiency?

**A.** Analyze the tractor work in your contract schedule. Compare "fixed position" and "mobile" work requirements. You may have only enough "hit-and-run" work for one rubber-tired tractor — or you may need more for extra profit. Chances are that on most jobs, of *any* size, you can profit more with at least *one* heavy-duty tractor-on-rubber.

**Q.** What does Tournatractor® offer that other rubber-tired tractors don't have?

**A.** The big difference is *proof of performance.* When you buy a Tournatractor, you're getting a tractor without "bugs". This 210-hp, 17-mph tractor has been used by contractors all over the world on every possible tractor job. Knowledge gained over the years has resulted in continuous improvement in mechanical efficiency and performance. It's the *only* thoroughly job-proven, rubber-tired tractor available for heavy earthmoving work.

Here are a few quick facts about the Model C Tournatractor . . . *Drawbar pull:* as good as comparable priced crawlers at speeds over 2 mph. *Mobility:* to go anywhere at speeds to 17 mph. *Roadability:* travels anywhere without damage to concrete, blacktop, planking, or rail ties. *Quick speed shift:* saves time making speed changes on the run. *Easy operation:* with electric control of dozer blade and other attachments. *Low maintenance:* because of far fewer parts, simple construction.

*Ask for a copy of the L-W bulletin 56-061-T for full details.*

CT-1977-DC-1

**LeTOURNEAU-WESTINGHOUSE COMPANY,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

**Where quality is a habit**

# Materials and Labor Prices

**Monthly Market Quotations by ENR Field Reporters**

**See following ENR issues for OTHER PRICES**

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Dec. 4; Next, Jan. 8.
- Iron and Steel Products, pipe: Last, Dec. 11; Next, Jan. 15.
- Wood Products, Glass, Explosives, Chemicals: Last, Dec. 18; Next, Jan. 22.
- Wage Rates, Building Board, Lath, Insulation: Last, Dec. 27; Next, Jan. 29.

## STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

| | STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in. | 4x12x12 in. | 8x12x12 in. | STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in. | 10x12x12 in. | 12x12x12 in. | BRICK Per M. in quantity, Common backing | Straight hard | LIME Per ton, in paper, Carload lot, Hydrated finishing | Common hydrated | Pulverized or lump |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $149.90p | $149.90p | $299.80p | $334.55p | ..... | ..... | $30.50p | $32.70p | $23.50 | $24.50 | $..... |
| Baltimore | 217.00 | 231.00 | 434.00 | 491.00 | 602.00 | 690.00 | 38.00k | 41.00k | 35.60 | 33.20 | ..... |
| Birmingham | 135.00p | 152.00p | ..... | 303.00p | 376.00p | 465.00p | 27.00ff | 38.00y | 35.02 | 22.30 | 28.33g |
| Boston | 232.00t | 248.00† | 463.25† | 556.00† | ..... | ..... | 41.50p | 46.50p | 39.20† | 31.20† | ..... |
| Chicago | 135.00 | 145.00 | 280.00 | ..... | ..... | ..... | 30.00 | 32.00 | 38.00 | 35.20e | ..... |
| Cincinnati | 205.00j | 225.00j | 296.00hhd | 213.00j | 288.00j | 314.00j | 48.75jj | 47.00j | 28.00j | 24.50j | 28.00j |
| Cleveland | 200.00 | 213.00 | ..... | 438.00 | ..... | ..... | 40.00 | 43.00gg | 32.75 | 28.00 | ..... |
| Dallas | 152.00 | 152.00 | 300.00 | 364.50 | 446.25 | 552.50 | 7.50 | 48.00 | 41.80 | 24.58 | 25.50 |
| Denver | ..... | ..... | ..... | ..... | ..... | ..... | 21.50 | 49.50 | 46.00p | 42.00p | 46.00p |
| Detroit | 205.00 | 219.00 | 410.00 | ..... | 598.00 | 674.00 | 47.50p | 48.00p | 38.00 | 30.00 | ..... |
| Kansas City | 158.00 | 158.00 | 312.00 | 312.00 | 400.00 | 500.00 | 33.00 | 33.00 | 36.26 | 34.26 | 29.76 |
| Los Angeles | r | r | r | r | r | r | 32.00kk | ..... | 38.00 | 38.00 | 39.00 |
| Minneapolis | 192.00p | 215.00p | 437.00p | 215.00pw | ..... | ..... | 45.60rp | 54.00y | 47.00hhs | 37.00hhs | 49.00hhds |
| Montreal | 170.00su | 178.00su | 325.00sus | 270.00q | 400.00q | ..... | 48.25h | 56.30h | 39.00 | 22.00 | 13.25 |
| New Orleans | 186.00 | 186.00 | 380.00 | 380.00 | ..... | ..... | 42.00 | 55.00 | 44.00 | 32.00 | 32.00P |
| New York | 176.90h | 188.70h | 283.00ch | 285.50hn | ..... | ..... | 44.00 | ..... | 40.00 | 37.00 | ..... |
| Philadelphia | 169.00 | 180.20 | 337.90 | 405.00 | ..... | ..... | 30/34 | 38/42 | 27.60 | 25.60 | 3.17m |
| Pittsburgh | 147.50t | 157.75t | 295.00t | 335.00t | 435.00t | 500.00t | 39.00t | 46.00t | 36.00t | 31.00t | ..... |
| St. Louis | 172.00n | 180.00p | 375.00p | 401.00p | 459.00 | 621.50 | 41.50t | 43.00 | 0.95aa | .80aa | 1.35s |
| San Francisco | 156.85* | 177.10* | 235.30dd* | ..... | ..... | ..... | 43.00* | 43.00* | 29.34 | 29.34 | 31.74 |
| Seattle | 235.00p | 270.00p | 490.00p | 265.00pw | ..... | ..... | 48.00 | 62.00 | 52.00hh | 38.00hh | 4.80mhh |
| Toronto | 158.00 | 173.50 | 336.00 | 263.00f | 378.00 | ..... | 35.00 | 63.00 | 36.00 | 33.50 | 31.50 |

*½ F.o.b. yard. **F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *b $4.50 del. *c 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e 5%, 10th following month. *f 8 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. processed. *n 7¾ x 7¾ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used; earthquake danger *s 8 x 16 x 12. *t 2% cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12 *y Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 8 x 12 x 12. *ff 80% common. *gg Smooth. $51.50 Rough.

## PAINT, ROOFING—F. O. B. CARLOAD LOTS

| | RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a | WHITE LEAD Per 100 lb. in 100 lb. cases in oil w | READY-MIXED PAINT Per gal., drums Graphite b | Aluminum c | Ferric Oxide d | ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq. | Asphalt felt, per 100 lb. | Tar felt, per 100 lb. | Asphalt coating per gal. | Tar pitch 360 lb. bbl. per ton |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $14.25 | $30.125 | $3.59 | $3.86 | $3.31 | $3.39 | $2.20 | $2.82 | $0.67 | $57.75 |
| Baltimore | 14.00 | 29.75 | 3.00 | 4.40 | 3.50 | 2.78 | 4.25 | 4.25 | .48 | 54.25 |
| Birmingham | 14.25 | 30.125 | 3.90 | 3.40 | .... | 3.09 | 2.29ii | 2.29ii | .82ff | 45.00ee |
| Boston | 14.00 | 29.75 | .... | .... | .... | 3.51q | 3.56g | 3.83g | .50g | 58.00g |
| Chicago | 14.00 | 29.75 | .... | .... | .... | 4.05tu | 3.02to | 3.32to | 46.00hhv | 57.70t |
| Cincinnati | 14.00 | 29.75 | .... | .... | .... | 2.59 | 2.02 | 2.42 | .428y | 55.96 |
| Cleveland | 14.00 | 29.75 | 2.49ppp | 3.30qq | 2.90qq | 3.51q | 2.44o | 2.85 | .58y | 49.00qq |
| Dallas | 14.25 | 30.50 | .... | 3.25B | .... | 3.00u | 3.00o | 3.00o | .470 | 66.00hh |
| Denver | 14.50 | 30.25 | 3.98 | 5.20 | 3.70 | 2.96 | 2.16o | 2.55o | .48ff | 50.00 |
| Detroit | 14.00 | 29.75 | 2.70 | 3.95 | 2.70 | 3.11 | 2.23o | 2.42o | .511ff | 49.00 |
| Kansas City | 14.00 | 30.50 | 3.99 | 3.43 | 3.01 | 3.58ii | 2.61o | 2.61o | .71y | ..... |
| Los Angeles | 14.00 | 30.00 | 3.30n | 4.50n | 4.20n | 3.20n | 2.15nii | l | .70ny | l |
| Minneapolis | 14.00 | 29.88/29.75 | .... | .... | .... | 3.09 | 2.52hi | 2.42hi | .442i | 50.00r |
| Montreal | ..... | 24.05 | 5.02Dffl | 5.94zffl | 4.65kffl | 5.40 | 4.65f | 4.65f | 1.60 | ..... |
| New Orleans | ..... | ..... | .... | .... | .... | 2.78 | 1.98 | 2.85 | 0.680 | ..... |
| New York | 13.00C | 29.75 | .... | .... | .... | 3.10 | 2.00o | 2.45o | .425o | 49.00* |
| Philadelphia | 14.00 | 29.75 | 3.60 | 3.40/3.65 | 3.50/4.60 | 3.00/3.30 | 2.54o | 2.54o | .37/.45 | 48/54 |
| Pittsburgh | 14.00 | 29.75 | 3.20ff | 2.25ff | 2.25gG | 3.37s | 2.59s | ..... | .45 | ..... |
| St. Louis | 14.00 | 29.75 | .... | .... | .... | 3.27iis | 2.39hhs | 2.85hhs | .38y | 62.00 |
| San Francisco | 14.00 | 30.00 | 3.20 | 4.30 | 3.50 | 2.95 | 2.09oos | 3.21 | .80jj | 56.00 |
| Seattle | 14.00 | 30.25 | 3.47 | 4.19cc | .... | 3.03qcc | 3.50hcc | ..... | .55cc | 51.40cc |
| Toronto | ..... | ..... | 5.00 | 5.75 | 5.50 | 5.15 | 4.00e | 2.90e | 1.25j | 55.00A |

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lbs. *f Per 432 sq ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers *k Over 80% ferric oxide. *l Not used. *n F.o.b. city. *o Per 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *w Price to contractors $1.25 less. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb. sq ft. roll. *bb Roofers coating and cement. *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb package. *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per roll. *jj Asbestos roof coating. *kk 400 lb barrels. *ll ASTM Spec. D982-49 *C 95%. *D Std. black. *j Mill. spec.: E TTP27; F TTV81; G TTP31. *H No quoted after Oct. 1957. *R revised.

## PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

| | PLASTER‡ Neat per ton | Gauging per ton | VERMICULITE‡ Home Insulation pellets | Plaster aggregate | Concrete Aggregate Untreated | PERLITE‡ Plaster Aggregate | Concrete Aggregate Untreated | ALUMINUM SHEET‡h† Flat .102" th 36"x96" & 48"x144" per lb‡t | Corr roof .032" th 36"x12' per shu | STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96-120" per cwthh | 28 ga 36"x120" per cwtmm | COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ⅜"b | ½"c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | per bag of 4 cu ft | | | | | | | | | | |
| Atlanta | $31.00 | $36.00 | $1.55a | $1.65a | $1.80al | $1.65 | $1.65 | $0.424n | $9.45n | $61.44n | $67.50 | $16.74f | $23.41f |
| Baltimore | 23.80 | 34.60 | 0.95 | 1.15 | 1.15 | 1.15 | 1.65 | 0.457 | 0.489r | 64.70 | 73.45 | 0.1674 | 0.2371 |
| Birmingham | 33.00 | 39.00 | 1.55 | 1.55 | 1.80l | 1.55 | 1.55l | 0.458d | 10.48 | 67.34 | 76.09 | 0.1620 | 0.2261 |
| Boston | 22.00 | 30.00 | 1.40 | 1.40 | 1.45 | 1.45 | 1.50 | 0.462 | 29.35p | 65.42dd | 71.92ddff | 0.1680 | 0.2345 |
| Chicago | 26.80 | 26.80 | 1.55 | 1.60 | 1.60l | 1.60 | 1.60 | 0.506a | 10.294a | 65.15aee | 73.90aee | 0.1644 | 0.2295 |
| Cincinnati | 23.85* | 23.85* | 1.75 | 1.75 | 1.75 | 1.85 | 1.90 | 0.434 | 9.56 | 65.28 | 74.03ff | 0.1608 | 0.2244 |
| Cleveland | 28.00 | 45.00 | 1.13k | 1.16ii | 1.24l | 1.45 | 1.45 | 0.458aa | 8.48 | 65.33ee | 74.08ee | 16.80f | 23.45f |
| Dallas | 30.65 | 32.65 | 1.07 | 1.23 | 1.32 | 1.21 | 1.32 | 0.484 | 0.517r | 65.00 | 78.00 | 0.1520 | 0.2170 |
| Denver | 25.00 | 25.00 | 1.50 | 1.40 | 1.50 | 1.40 | 1.55 | 0.446 | 9.75 | 67.32gg | 76.09gg | 0.1772 | 24.69 |
| Detroit | 26.00 | 26.00 | 1.27 | 1.31 | 1.40 | 1.43k | 1.50k | 0.456a | 10.376a | 65.15a | 79.90a | 22.00f | 26.75f |
| Kansas City | 30.00 | 35.00 | 1.14 | 1.18 | 1.26l | 1.18 | .... | 0.444 | 9.50 | 67.50 | 76.25 | 16.80f | 23.45f |
| Los Angeles | 27.00 | 28.00 | 1.25k | 1.20k | 1.25 | 1.06 | 1.10 | 0.486 | 10.543d | 67.02 | 75.77 | 0.1620 | 0.2261 |
| Minneapolis | 35.00 | 35.00 | 1.55 | 1.70 | 1.80 | 1.40 | 1.40 | 0.468 | 16.23w | 65.71 | 2.21ff | 0.1644f | 0.2295 |
| Montreal | 27.60h | 35.60k | 1.25 | 1.40 | 1.50 | 1.15y | 1.15y | 0.495 | 12.10 | 64.75 | ..... | 0.1827 | 0.2160 |
| New Orleans | 34.00 | 48.00 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 0.50 | 8.715 | 71.50 | 72.45 | 0.1585 | 0.2209 |
| New York | 25.25 | 31.25 | 1.35 | 1.30 | 1.50 | 1.40 | 1.40 | 0.493ad | 10.929a | 68.53 | 77.33 | 16.08f | 22.44f |
| Philadelphia | 23/25 | 32.00 | 1.35 | 1.35 | 1.40l | 1.05qq | 1.05qq | 0.44au | 9.45a | 66/68a | 75/77a | 15.62f | 21.76f |
| Pittsburgh | 30.00nn | 33.00nn | 1.60nn | 1.50nn | 1.35 | 1.73 | 1.73 | 0.452 | 9.46 | 64.00 | 76.25pp | 0.1430 | 0.1506 |
| St. Louis | 29.00 | 40.00 | 1.35 | 1.60ff | 1.55 | 1.60 | 1.60 | 0.452 | 10.11 | 65.61 | 72.11y | 16.44fm | 22.95fm |
| San Francisco | 29.50 | 30.50 | 1.38 | 1.38 | 1.50 | 1.38o | 1.58o | 0.502 | 9.05 | 67.10 | 73.60 | 0.1680 | 0.2345 |
| Seattle | 42.40 | 45.60 | 1.55 | 1.25k | 1.85l | 1.50k | .... | 0.50 | 9.90 | 67.02 | 75.77 | 0.1680 | 0.1876 |
| Toronto | 28.00 | 45.50 | 1.20 | 1.30 | 1.35l | .... | 1.55 | 0.3995 | 24.75ae | 73.74 | 86.52 | 0.2682 | 0.2870p |

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ⅜" O.D. *c ½" O.D. *d 0.100"th *e 36" x 90" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-16M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 96;-10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 100th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *ff 25 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 80.4-lb, per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt; 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs *R revised.

B Tournapull is available with 325 hp GM power-plant, or, as torque-converter "B", with 335 hp Cummins engine.

# This scraper loads more pay-yards...faster... because it makes better use of its "horses"

Compare BIG scrapers available today, and you'll note that most of them offer engines in the 300 horsepower range. This "flywheel hp," however, is only *part* of the scraper power-picture. *More* important... as far as load size and loading speed is concerned... is how much of that power is *wasted*, and how much is actually *used*.

Consider, for instance, the 325 to 335 hp LeTourneau-Westinghouse B Tournapull® with 28-yd Fullpak® scraper. This machine gets *bigger loads faster* because it makes *fullest possible use* of power — its own, and that of its pusher. Here's how...

**Low, wide bowl cuts power loss**

Its Fullpak scraper design, for instance, is an important power-saver. Low and wide, it lets dirt flow back into the bowl almost on a straight line. With blade in ground, Fullpak floor has a rise of only 1°, front to back. That means that more prime-mover power can be concentrated on *pulling* and *cutting*, less on *lifting*.

Because Tournapull's push-block is low, maximum pusher-thrust is directed squarely behind the blade where it's needed. Pusher-plate, push-block, and scraper-blade "line up" for concentration of maximum power. Direct line of push also eliminates "humping"... steadies the scraper for easier loading and more accurate grading.

Construction details of the "B" also cut power-waste, because they reduce friction-loss. Heavy-duty roller bearings, for instance, are used throughout. Welded steel construction eliminates force wasted in twisting and distortion. Tournapull's simple design eliminates a lot of heavy hardware, whose dead-weight robs you of power. And drive-train is short-coupled, efficient... doesn't waste power in detours between engine and work application.

**"Electrics" use hp only when needed**

Electric controls are horsepower savers, too. Instead of continually dragging on your engine, as hydraulics do, current for Tournapull scraper controls is generated only when needed. And the *instant* response of "electrics" eliminates wasteful "build up" of power for operating scraper controls.

Look at the *whole* power-picture when you compare scrapers. For complete information on the B 'Pull*, see your nearby LeTourneau-Westinghouse Distributor.

*Trademark BP-1748-DC-1

**LeTOURNEAU-WESTINGHOUSE COMPANY,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

**Where quality is a habit**

# WHEN EVERY MINUTE COUNTS...

Project: Bridge, U.S. Highway #79 Relocation, north of Marianna, Arkansas.
Part of Madison-Marianna Floodway Project, St. Francis River Basin

To construct the piers for this 926′ long bridge, the contractor also had to excavate for that portion of the Madison-Marianna Floodway ditch channel under the bridge structure.

This involved digging 45′ down in sandy clay, black gumbo, and sand — all of it WET!

Under constant threat of floods from the critically high water level in the St. Francis Basin, four 8″ Moretrench Pumps and 280 Moretrench Wellpoints, pumping over 6,000 gallons per minute, kept the hole dry. Contractor's crews worked around the clock to complete this important part of the Floodway Project.

When every minute counts — as it does on any wet job — count on a **MORETRENCH WELLPOINT SYSTEM** to keep you going — in the dry.

Call our nearest office for an accurate estimate on predraining your wet work.

## MORETRENCH CORPORATION

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Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington
Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario
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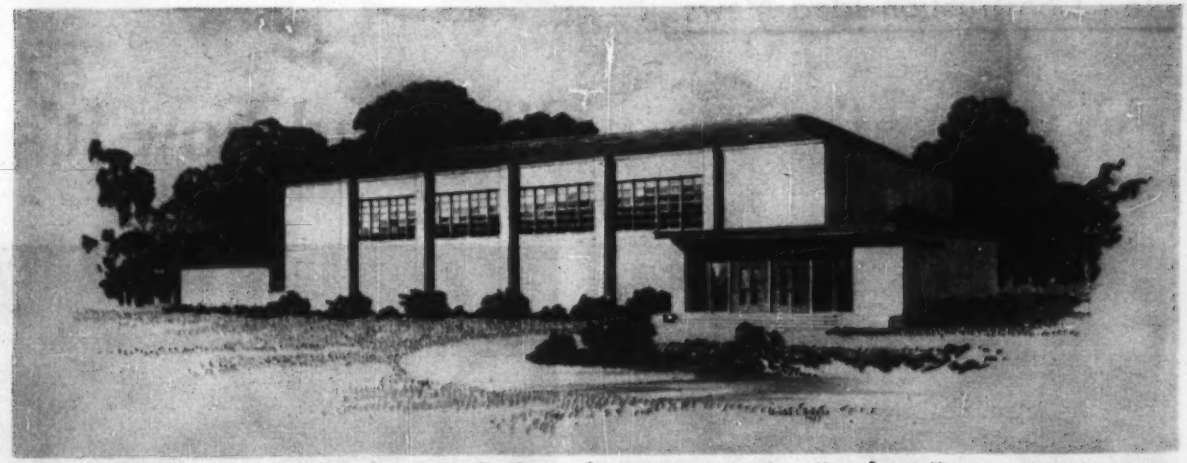
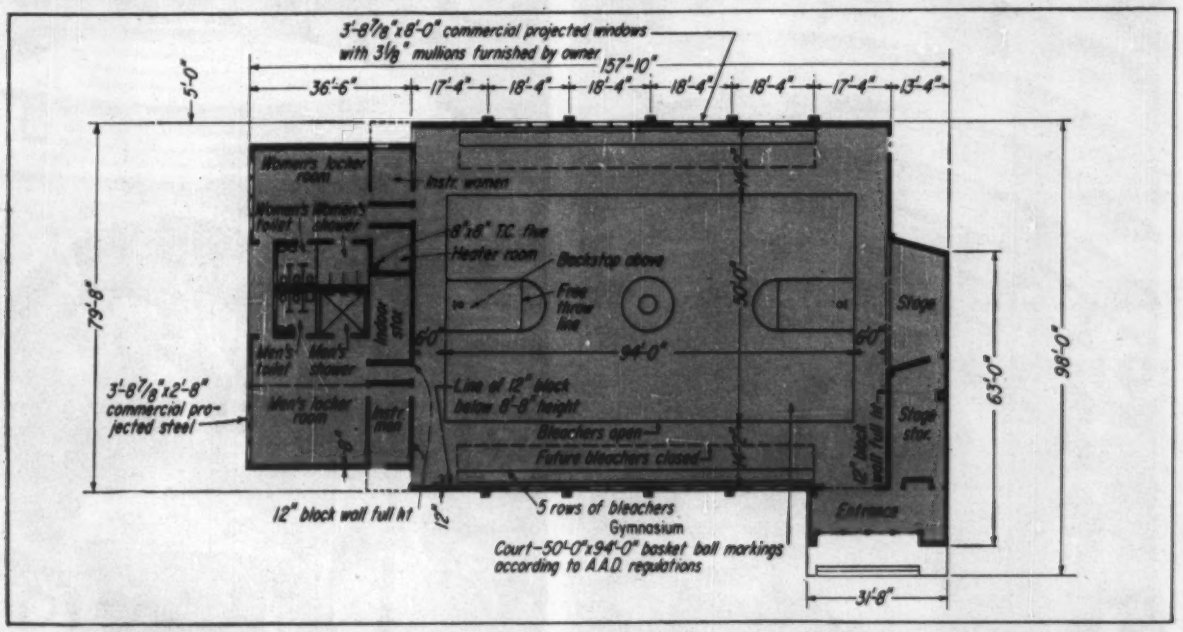


**Kings College Gymnasium-Auditorium, built as design-construction "package" . . .**




**. . . costs only $29.59 per cu ft $7.47 per sq ft, combines quality with low maintenance.**

# Contractor Retains the Architect


Robert F. Borg

General Manager
Kreisler-Borg Construction Co.
White Plains, N. Y.


At unit costs far below any record for similar facilities in its area, King's College of Briarcliff Manor, N. Y., is building a gymnasium-auditorium.

It's designed for an ultimate student capacity of 800, with bleacher capacity for 1,000 spectators at sports events. The gymnasium has a standard 50 x 90 ft basketball court.

Instructed to do the job as economically as possible, Kreisler-Borg Construction Co. hired consulting architect Matthew Warshauer. Together, we came up with these cost savers:

- Prefabricated wood trusses.
- Concrete block exterior walls.
- Elimination of frills and unnecessarily expensive materials.

But to assure fine quality, we used such materials as first grade maple flooring on wood sleepers set in mastic. And low maintenance costs are guaranteed by installing oil-fired, hot air heat.

The $91,338 structure has 12,230 sq ft of usable floor area, 20 ft of clear headroom in the gymnasium and a cube of 308,628 cu ft. Price includes design cost. But the owner supplied 16 of 42 windows and sashes, painting, plastering, also some rock excavation not a part of the structure cost.

The unit costs are $114 per pupil, $91 per spectator seat, $29.59 per cu ft and $7.468 per sq ft.

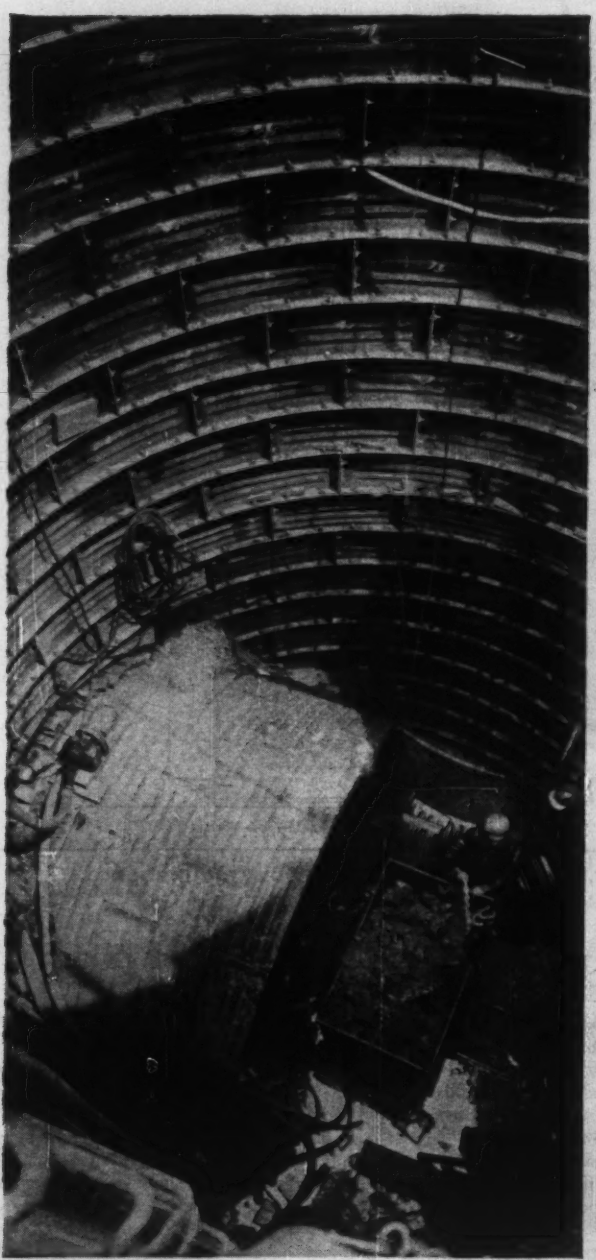
Foundations are on rock or virgin soil. Footings are 1:2:4 mix portland cement concrete. Slabs, on hard tamped earth with 4 in. cinders fill over it, are 4 in. concrete reinforced with 6 x 6-in., 6-gage welded wire mesh. Visqueen was used as a vapor barrier under the concrete floors.

Construction operations uncovered numerous underground springs and abandoned drain lines. As additional protection against water, the contractor

(*Advertisement*)

*New Construction Idea News*

# Faster, safer tunneling and how it's



**COMPLETED IN 3 WORKING DAYS**—352 COMMERCIAL tunnel liner plates reinforce 192" diameter, 30 feet deep, initial access shaft for Tousley Construction Co. section of the sewer project. As vertical shaft bored downward, the 16" x 37 11/16" tunnel liner plates were successively secured in position with ¾" bolts.

**UNCLUTTERED WORKING AREA** at Thompson Construction Co. access shaft permits easy entry into tunnels and allows fast removal of ⅝ cubic yard mucking bucket loaded with chunks of hard-packed blue clay from tunnel heading. Bucket is lifted and dumped at surface by crane equipped with 35 ft. boom.

(*Advertisement*)

# being done

**Steel liner plates produced by COMMERCIAL for speedier assembly and greater safety factor *prove unanimous choice* of two different contractors on $1,710,000 Indianapolis storm interceptor sewer project.**

Contracts for the nearly two miles of tunneling involved in the East Michigan Street storm sewer job at Indianapolis, Indiana were awarded to two separate firms. And here's what they had to say about their independent choice of COMMERCIAL steel tunnel liner supports:

"No other liner plate can compare with COMMERCIAL for easier and faster installation and assembly," says Mr. Porter Williams, Secretary of the Thompson Construction Company. "And among all steel tunnel liner designs, we are firmly convinced there is none safer than COMMERCIAL's," he added.

"We have been using COMMERCIAL tunnel liner plates exclusively for three years," commented Mr. Don Bixler, President of the Tousley Construction Company. "Their consistent size and uniformity simplifies placement and speeds fastening," he continued.

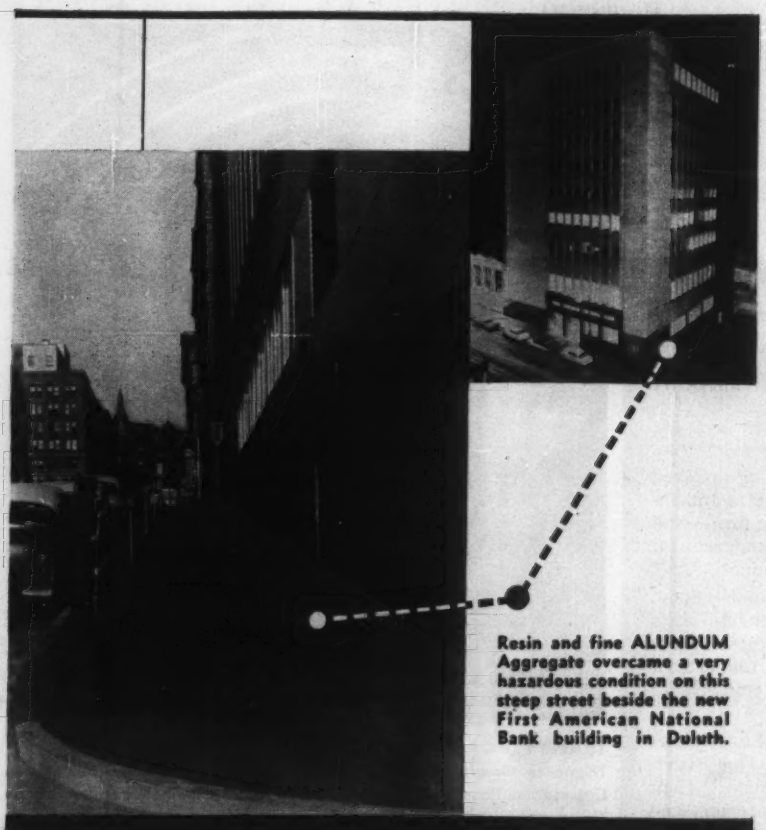
The Thompson Construction Company is handling 5400 feet of the tunnel project—two sections of 48" and 84" in diameter. Both sections are being tunneled simultaneously but in opposite directions through hard-packed blue clay soil. The 84" diameter tube will house a 60" I.D. pre-cast concrete pipe, while the 48" section will enclose a similar 18" pipe. Space between pipe and liner shell will eventually be filled with concrete. In addition, twelve 21 ft. deep vertical shafts, each fitted with manholes for future access, will be dug at strategic points along the complete length of the tunnel.

The Tousley Construction Company, on another contract, is constructing 4500 feet of tunnel, 900 feet of which will be 10 ft. in diameter and the balance of 3600 feet 11 ft. in diameter. Pre-cast concrete pipe 96" and 102" in diameter will eventually line the entire tunnel. Progress on the job, which will also include six 30 ft. deep vertical shafts for future access, is moving along at the rate of 12 feet per day in spite of the hard-packed blue clay and water seepage complications involved.

For more complete details on how COMMERCIAL steel liner plate can simplify and speed up your vertical shaft, surface or sub-surface tunnel project—help make it safer—send today for your copy of Bulletin 300-CI. With over 25 years experience in the design of supports for soft ground or rock excavation, COMMERCIAL's engineers may be able to suggest a more workable and economical solution to your particular support design problem whatever it may be. Address: Commercial Shearing & Stamping Company, Dept. E-52, Youngstown 1, Ohio.

**10 FEET PER DAY** is average rate of progress in each of the concurrent Thompson tunnels. As fast as mucking operation progresses, ⅜" thick COMMERCIAL liner plates are rapidly installed by the head miners. The size and uniform shape of the plates facilitate their storage alongside mucking car tracks.

**NO OUTSIDE BOLTING**—Deep flange which surrounds all four sides of COMMERCIAL plate eliminates this hazard. All head miner does is to position plate, line up accurate pre-punched bolt holes, insert ¾" quick acting bolts and tighten nuts with a pin wrench. No fear of loose fit because inside through-flange connections eliminate need of outside support for bolt heads.



Resin and fine ALUNDUM Aggregate overcame a very hazardous condition on this steep street beside the new First American National Bank building in Duluth.

# RESIN plus NORTON ABRASIVE...

***A new, easy, economical way to provide SAFE WALKING Surfaces - Indoors or Out***

Just brush, roll or spray on one of the new resins* — sprinkle over it a uniform layer of Norton abrasive — then add a second locking coat of resin — RESULT — a surface that is highly non-slip, wet or dry, and extremely resistant to wear.

For each job there's a Norton abrasive that's just right. It can be one of the sidewalk abrasives — ALUNDUM† or CRYSTOLON† — in the correct size or it can be the finest size of ALUNDUM† Aggregate.

## Alundum (C.F.) Aggregate

For a floor that will provide the very maximum of durability plus a permanently non-slip surface, wet or dry, the answer is ALUNDUM (C.F.) Aggregate in cement. You'll find it widely used indoors or out in floors, ramps and stairs in all kinds of structures — industrial and public. Write for Catalog 1935EN for complete information and suggested specifications.

*Names and installation instructions on request.
†Trademark reg. U. S. Patent Office

NORTON
NON-SLIP FLOORS

NORTON COMPANY
WORCESTER 6, MASS.

ALUNDUM AGGREGATE for Terrazzo and Cement • ALUNDUM STAIR and FLOOR TILE
ALUNDUM and CRYSTOLON Sidewalk Abrasives


## . . . Kings College

placed an extra two-ply-membrane waterproofing between the wood gymnasium floor and the concrete subfloor.

Piers supporting the roof trusses are 2 x 3 ft. They are of 75% solid concrete block filled with 1:2½:5 portland cement concrete. Interior footings are immediately under the floor on virgin soil.

All materials exceed minimum requirements of state and local building codes and of the National Board of Fire Underwriters. Structural lumber is Douglas Fir—minimum 80% construction grade except roof trusses. Trusses are designed for a maximum allowable wood strength of 1450f with all members of graded Douglas Fir Select. Five wood bow string trusses support the main roof which is designed for a live load of 40 lb per sq ft.

**The heating system** uses two furnaces, one for the locker room area and one for the gymnasium.

The locker room furnace has 188,000 BTUH capacity at the bonnet with an input of 235,000 BTUH. The 18 in. blower is equipped with ¾ hp motor, variable speed sheave and V belt drive. Filters are the throwaway type, one 16 x 20 x 2 in. and two 20 x 25 x 2 in.

The gymnasium furnace has 700,000 BTUH capacity at the bonnet with an input of 875,000 BTUH.

Electric service is 200 AMP 3 wire 3 phase, fused at 150 AMP.

Tom Grasso is general superintendent for Kreisler-Borg. Wheeler Davis and Johnny Cricco are field superintendents.

## Where Construction $s Went:

| | ¢ |
|---|---|
| Excavation (excluding special rock) | 1.6 |
| Concrete, incl footings, piers, sub floor | 11.0 |
| Masonry, concrete block | 26.8 |
| Structural steel | 1.9 |
| Carpentry, incl roof trusses, joists, deck | 16.9 |
| Millwork | 0.7 |
| Steel sash (furn 26, install 42) | 0.8 |
| Glazing | 1.4 |
| Roofing, insulation, sheet metal | 10.2 |
| Hollow metal | 0.4 |
| Main entrance aluminum | 0.7 |
| Flooring, gymnasium and stage | 7.8 |
| Hardware | 1.4 |
| Toilet partitions | 0.7 |
| Plumbing | 4.8 |
| Heating | 10.3 |
| Electrical | 2.6 |
| Total | 100.0 |

## How floor space was used:

| 12,230 sq ft | | Inside Dimensions | % of total |
|---|---|---|---|
| Locker Rooms | | 26' 8" x 20'0" | 4.59 |
| | | 26' 8" x 28'8" | 6.58 |
| Toilets | 2@ | 9' 0" x 9'3" | 1.43 |
| Shower Rooms | 2@ | 9' 8" x 9'3" | 1.44 |
| Instructor's Rooms | | 8'10" x 12'0" | 0.91 |
| | | 8'10" x 17'0" | 1.29 |
| Indoor Storage | | 8'10" x 18'8" | 1.42 |
| Halls | 2@ | 8'10" x 4'0" | 0.60 |
| Heater Room | | 8'10" x 10'0" | 0.71 |
| Gymnasium | | 106' 0" x 78'4" | 71.41 |
| Stage | | 13' 4" x 29'0" | 3.33 |
| Stage Storage | | 13' 4" x 29'0" | 3.33 |
| Entrance Lobby | | 30' 4" x 11'4" | 2.96 |

**Easiest blasting method known** . . . just pour oil-soaked Spencer N-IV Ammonium Nitrate into drill hole and detonate with ⅜-inch cord.

## Look At One User's Savings With Spencer N-IV:

**A typical blast of 21 6½-inch holes at a Midwestern cement plant.**

If loaded with all dynamite:

| | |
|---|---|
| 4210# Dynamite (Main & deck charge) | $829.33 |
| 1600′ Primacord | 50.32 |
| 20 M.S. Connectors | 10.51 |
| Total | $890.16 |

And NOW, with Spencer N-IV Ammonium Nitrate and ⅜-inch detonating cord:

| | |
|---|---|
| 4292# Ammonium Nitrate | $155.15 |
| 660′ ⅜-inch cord | 36.30 |
| 300′ 50-grain cord | 9.30 |
| 54 Gals. No. 2 Diesel fuel | 7.02 |
| 20 M.S. Connectors | 10.51 |
| Total | $218.28 |

**Most economical blasting method known** . . . in this typical blasting operation the saving over dynamite is $672 or 75%.

## *User Reports:* "Blasting with new Spencer N-IV Ammonium Nitrate

# Costs 75% Less Than All Dynamite"

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**These savings are now possible** because of the development of revolutionary new Spencer N-IV Ammonium Nitrate. Spencer N-IV is different from any prilled ammonium nitrate now on the market. Here's why:

**1. Increased oil-absorption** . . . special structure of Spencer N-IV prills absorbs oil more easily. This gives you easier detonation and a superior blast effect.

**2. Reduced priming cost** . . . new Spencer N-IV Ammonium Nitrate can be initiated with a single strand of ⅜-inch detonating cord. No need for attaching additional material at intervals, or other complex priming methods.

**3. Greater blast energy** . . . Spencer N-IV contains a much higher percentage of ammonium nitrate than other brands on the market. Yet it's completely free-flowing — easy to load, easy to shoot.

**But that's not all** . . . Spencer N-IV Ammonium Nitrate is packaged in rugged new, all-plastic 50-pound bags. Two years of tests show these bags actually are tougher than paper and cut bag breakage as much as 50%. They end the nuisance of leaking oil and dirty bags, too. And, these bags are so moisture-proof they can even be stored outdoors.

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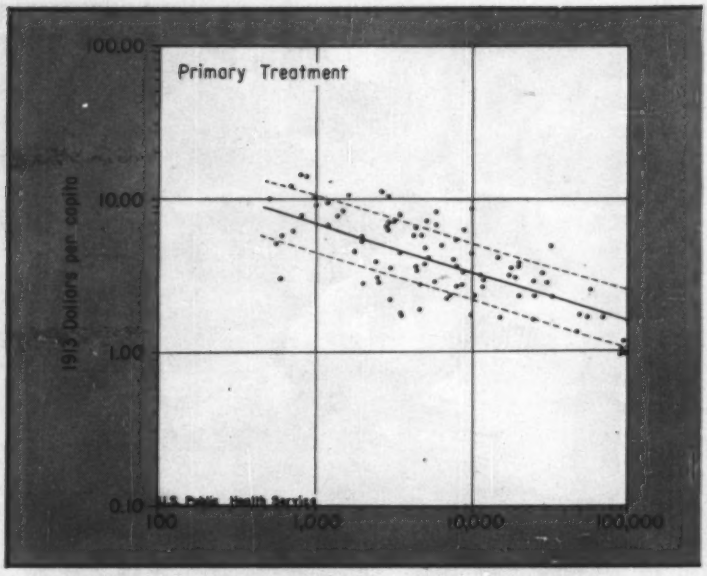
City_____ State_____

**New cost-per-capita curves for sewage treatment plants are presented here in the first report on a study begun last summer by the U. S. Public Health Service. Like ENR's Construction Cost Index, curves are based on 1913 dollars. Current index, therefore, updates costs determined from curve.**




# How to Estimate Sewage Plants

**John R. Thoman**
Senior Sanitary Engineer
and
**Kenneth H. Jenkins**
Analytical Statistician
Water Supply and Water Pollution Control Program, U. S. Public Health Service

This is the first report of a study begun last summer by the Public Health Service to determine what sewage treatment plants cost.

Using contract cost data for projects receiving financial assistance under the Federal Water Pollution Control Act (P. L. 84-660), cost curves have been developed for primary and secondary treatment and for stabilization ponds (lagoons). These curves show cost per-capita based on the design population.

Curves to estimate treatment-plant costs have many uses. Chief among these is in the development of estimates in the early planning stages of such projects.

The curves permit more realistic engineering and financial planning, provide reliable norms for comparison, and furnish public relations material.

The solid line in each chart represents the most probable cost, as derived by the method of least squares. The dashed lines are limits encompassing two-thirds of the data points (one standard error of estimate on each side of the solid line).

The curves are applicable within the population limits shown. Extension to larger or smaller design populations would be a doubtful procedure.

Local costs at any time are determined by multiplying three factors together: per-capita cost from the curve, the design population, and the current Construction Cost Index for the particular locality (see map).

• **Example**—A primary plant for a design population of 1,000 is to be built in the Seattle area. From the primary cost curve, a value of $6.80 is obtained. The December index for Seattle is 799. The most likely construction cost of a treatment plant would be $6.80 x 7.99 x 1,000—$54,330. About two-thirds of the cases would be expected to fall between $85,500 and $36,750, the range between the upper and lower dashed lines on the primary cost curve.

The curves are based exclusively on projects receiving grants under P. L. 84-660 and involving only sewage treatment plants. Interceptor, outfall, pumping station and similar costs are not included, nor are projects for additions and enlargements. Land, legal, architectural, financing and interest costs also are excluded.

Inspection showed substantial variation in the indexes for the 20 cities that make up the ENR Construction Cost Index. For 1957, with an average U. S. index of 724, the low city was Atlanta with an index of 532. New York was high with an index of 863. Accordingly, the problem resolved itself into reducing individual project cost data on the basis of the city index most likely to affect it.

The United States is divided into 20 areas for this study, each assigned to one of ENR's indexed 20 cities. The area distribution was made using a trading area distribution map widely accepted in marketing and trade-analysis work. The resulting distribution of areas, while somewhat arbitrary in a few instances, is the best available when working under the limitation imposed by the location of the 20 cities.

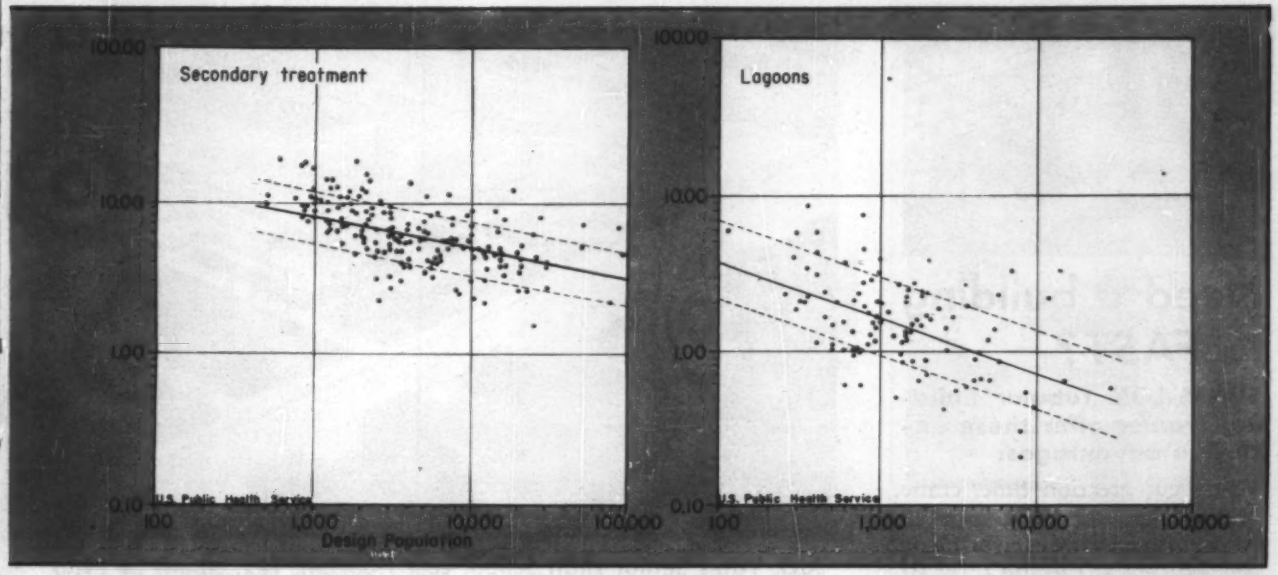
Data were processed using modern, electronic computing equipment for punched cards. New data can be introduced with little difficulty.

The data included in this analysis include 104 primary plants, 183 secondary plants and 101 stabilization ponds. Geographically, 33 states are represented in the primary group and 35 in the secondary group. Six states were not represented in either. The 101 stabilization ponds were included from 19 states, but 50% of them were from four states—North and South Dakota, Missouri, and Wyoming.

• **Limitations**—These cost curves are not intended to present a patent, handbook approach to estimating sewage treatment plant contract costs. They are subject to many limitations.

Former analyses of such cost data (Velz, ENR Oct. 14, 1948, p. 84, and Diachishin, ENR Oct. 17, 1957, p. 316) were based on design flow rather than on design population.

Such analysis was considered for this study. However, more data points were available when using the design population basis. Since both methods are




# Quickly

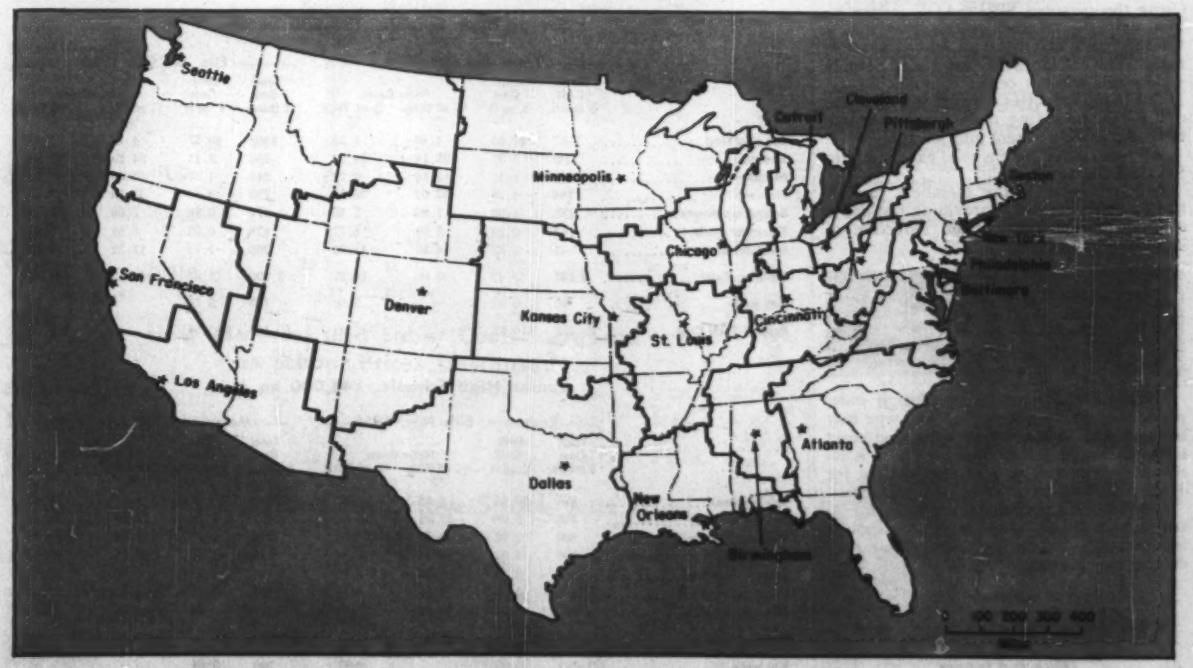
based on estimates of future conditions, not wholly independent of other design factors, the method used was that which provided the largest amount of data.

A more correct picture of costs would be obtained if the data were analyzed on the basis of organic loading of the plants. Such data, however, are seldom available.

Perhaps the best method of analysis would be on a capitalized-cost basis, taking into account features that affect operation and maintenance costs.

Portions of the data used in developing these curves were analyzed with respect to the design per-capita flow. While these varied considerably, 113 of 211 primary and secondary plants were in the range of 100 to 125 gal per capita per day. Almost equal numbers of cases were higher and lower than this group.

The preliminary analysis here includes a substantial number of cases, but more cases will increase the statistical significance of the curves. The data-processing system has been designed so that additional data may be incorporated at any time, and the Public Health Service plans to rerun the cost curves about every six months. It may be assumed that significant refinements will develop. A general tightening of confidence limits should result, and curves for individual processes will be developed as sufficient numbers of cases become available.




**REGIONAL PRICES are no problem with monthly indexes available for 20 cities (ENR Dec. 18, p. 80).**

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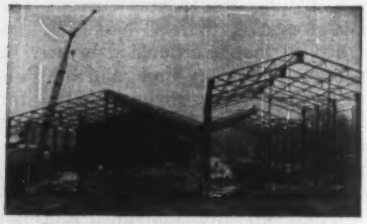

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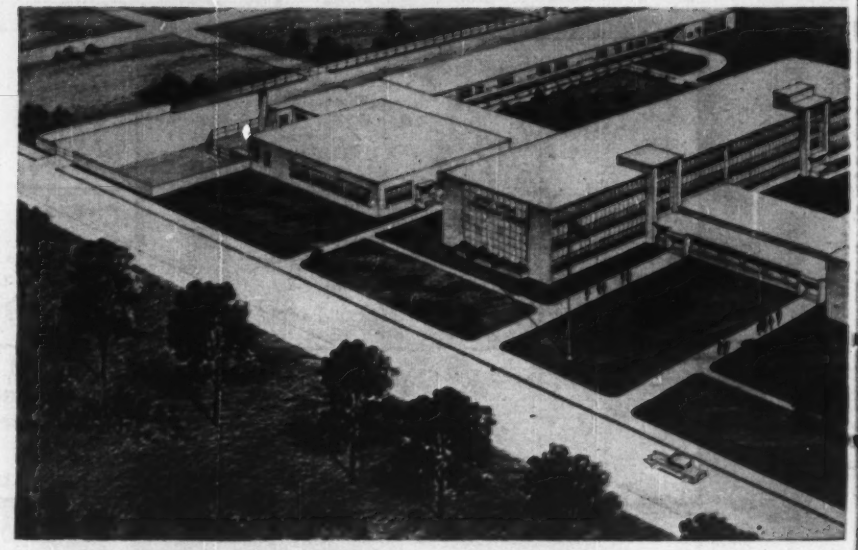


**Jack Yates Senior High School cost Houston, Tex., more in 1956**

# How Prices Dropped

As evidence of the "profitless prosperity" confronting school contractors in today's market (ENR 10-2-58) R. J. Simmonds, vice president of Linbeck Construction Corp., Houston, Tex., has supplied contract prices on two pairs of matching schools which show that school prices are down 2½% in two years while materials and labor costs have gone up 7%. How the changes are

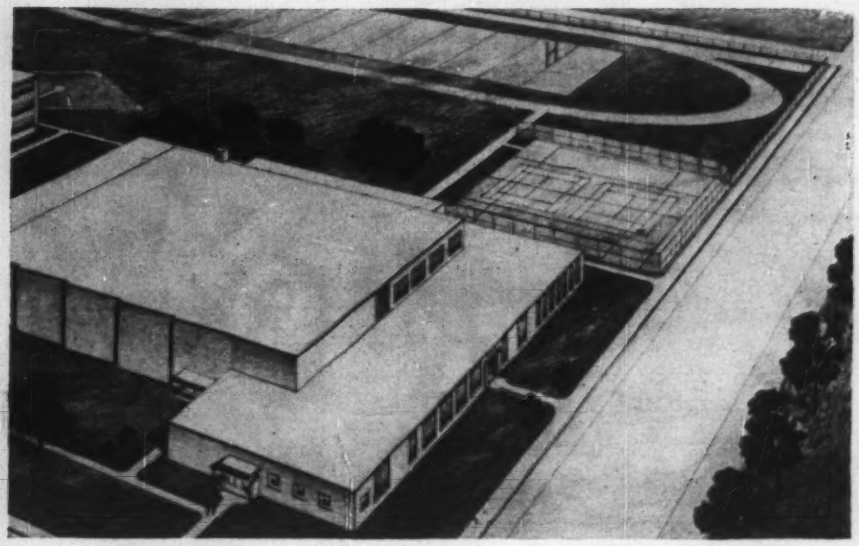
## Unit and Ratio Costs Show Where Differences Are:

**Senior High Schools, 178,000 sq ft**

| | Yates, Bid Oct. 1956 | | | | Ella, Bid Oct. 1958 | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Cost $ thous. | Unit Cost $/sq ft | Ratio Costs % of Bldg % | % of Total % | Total Cost $ thous. | Unit Cost $/sq ft | Ratio Costs % of Bldg % | % of Total % |
| Job overhead | $107 | $0.60 | 4.48 | 4.32 | $102 | $0.57 | 4.45 | 4.22 |
| Structural | 600 | 3.37 | 25.14 | 24.22 | 554 | 3.11 | 24.19 | 22.94 |
| Masonry | 242 | 1.36 | 10.14 | 9.77 | 244 | 1.37 | 10.66 | 10.10 |
| Finishes | 764 | 4.29 | 32.01 | 30.85 | 783 | 4.40 | 34.19 | 32.43 |
| School equipment | 188 | 1.06 | 7.88 | 7.59 | 174 | 0.98 | 7.60 | 7.20 |
| Electrical work | 143 | 0.80 | 5.99 | 5.77 | 128 | 0.72 | 5.59 | 5.30 |
| Mechanical work | 343 | 1.93 | 14.36 | 13.85 | 305 | 1.72 | 13.32 | 12.63 |
| Building Total | 2,387 | 13.41 | 100.00 | 96.37 | 2,290 | 12.87 | 100.00 | 94.82 |
| Site work | 90 | 0.51 | | 3.63 | 125 | 0.70 | | 5.18 |
| Project Total Cost | $2,477 | $13.92 | | 100.00 | $2,415 | $13.57 | | 100.00 |

**Junior High Schools, 148,000 sq ft**

| | Kashmere, Bids Nov. 1955 | | | | Meyerland, Bid July, 1958 | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Cost $ thous. | Unit Cost $/sq ft | Ratio Costs % of Bldg % | % of Total % | Total Cost $ thous. | Unit Cost $/sq ft | Ratio Costs % of Bldg % | % of Total % |
| Job overhead | $96 | $0.65 | 4.90 | 4.60 | $100 | $0.68 | 5.21 | 4.95 |
| Structural | 456 | 3.08 | 23.29 | 21.83 | 462 | 3.12 | 24.05 | 22.86 |
| Masonry | 300 | 2.02 | 15.32 | 14.36 | 285 | 1.93 | 14.84 | 14.10 |
| Finishes | 596 | 4.02 | 30.44 | 28.53 | 542 | 3.66 | 28.21 | 26.82 |
| School equipment | 142 | 0.95 | 7.26 | 6.80 | 128 | 0.86 | 6.66 | 6.33 |
| Electrical work | 115 | 0.78 | 5.87 | 5.50 | 125 | 0.84 | 6.51 | 6.19 |
| Mechanical work | 253 | 1.71 | 12.92 | 12.11 | 279 | 1.89 | 14.52 | 13.80 |
| Building Total | 1,958 | 13.21 | 100.00 | 93.73 | 1,921 | 12.98 | 100.00 | 95.05 |
| Site work | 131 | 0.90 | | 6.27 | 100 | 0.68 | | 4.95 |
| Project Total Cost | $2,089 | $14.11 | | 100.00 | $2,021 | $13.66 | | 100.00 |



than its twin did in 1958

# for Matching Schools

distributed is shown in the tables that follow for the 2½ year and 2 year periods between bidding one junior and one senior high school and its respective twin. Architects for the junior high schools are Wirtz, Calhoun, Tungate & Jackson of Houston and for the senior high schools, Herbert Voelcker & Associates of Houston, with Milton McGinty as coordinating architect.

## Contract Prices for Matching Schools

| | Junior High | | | Senior High | | |
|---|---|---|---|---|---|---|
| | Kashmere Nov. 1955 $ thous. | Meyerland July 1958 $ thous. | Change 2 yr. 8 mos. | Yates Oct. 1956 $ thous. | Ella Oct. 1958 $ thous. | Change 2 yrs. |
| General contract | | | | | | |
| Job overhead | $96 | $100 | + 4% | $107 | $102 | − 5% |
| Structural | 456 | 462 | + 1% | 600 | 554 | − 8% |
| Masonry | 300 | 288 | − 5% | 242 | 244 | + 1% |
| Finishes | 596 | 542 | − 9% | 764 | 783 | + 2% |
| School equipment | 142 | 128 | −10% | 188 | 174 | − 7% |
| Total general | 1,590 | 1,517 | − 5% | 1,901 | 1,857 | − 3% |
| Electrical | 115 | 125 | + 9% | 143 | 128 | −10% |
| Mechanical | 253 | 279 | +10% | 343 | 305 | −11% |
| Building total | 1,958 | 1,921 | − 2% | 2,387 | 2,290 | − 4% |
| Site work | 131 | 100 | −24% | 90 | 125 | +38% |
| Contract total | $2,089 | $2,021 | − 3.3% | $2,477 | $2,415 | − 2.5% |
| Cost per sq ft | $14.11 | $13.66 | − 3.2% | $13.92 | $13.57 | − 2.6% |

## How Material and Labor Costs Increased as School Prices Decreased

| | | | | | | |
|---|---|---|---|---|---|---|
| ENR Building Cost Index | 480 | 530 | +10% | 500 | 535 | + 7% |
| Wages, skilled | $3.22 | $3.34 | + 4% | $3.24 | $3.50 | + 8% |
| common | 1.72 | 1.85 | + 7% | 1.75 | 1.95 | +11% |
| Concrete (5 SK) | 11.75/cy | 13.90/cy | +18% | 12.80/cy | $13.90/cy | + 9% |
| Structural steel | 0.12/lb | 0.114/lb | − 5% | 0.114/lb | 0.073/lb | −36% |

## Facilities Provided and How Space was Used:

| | Kashmere-Meyerland Junior High Schools | | | Yates-Ella Senior High Schools | | |
|---|---|---|---|---|---|---|
| | sq ft | % | facilities | sq ft | % | facilities |
| Classroom, plus library and offices | 64,000 | 43 | 44 stations | 80,000 | 45.0 | 45 stations |
| Auditorium, plus band room and 2 choral rooms | 26,000 | 18 | 1,050 seats | 28,000 | 15.6 | 1,186 seats |
| Shop (including boiler room) | 13,000 | 9 | 2 shops | 14,000 | 7.9 | 5 shops |
| Cafeteria and kitchen | 14,000 | 9 | 700 seats | 16,000 | 9.0 | 800 seats |
| Gymnasiums, plus all locker rooms | 26,000 | 18 | 2 gyms | 35,000 | 19.7 | 2 gyms |
| Swimming Pool | 5,000 | 3 | 25'x75' | 5,000 | 2.8 | 25'x75' |
| Total area | 148,000 | 100 | | 178,000 | 100.0 | |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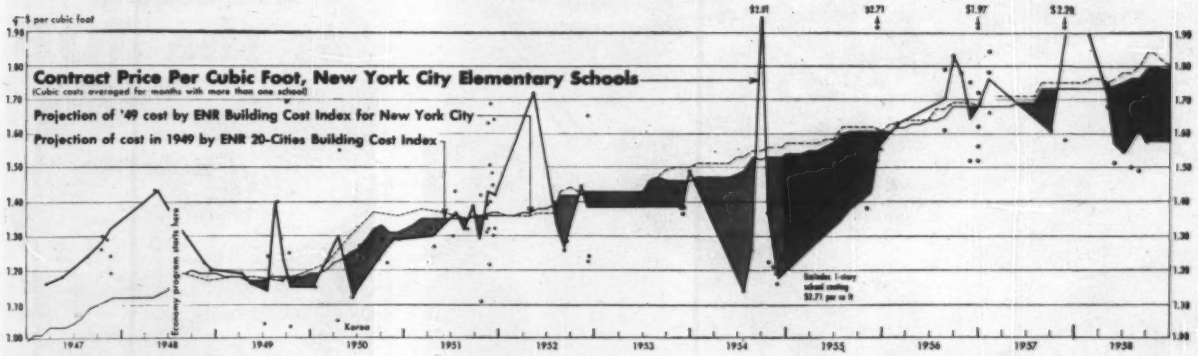
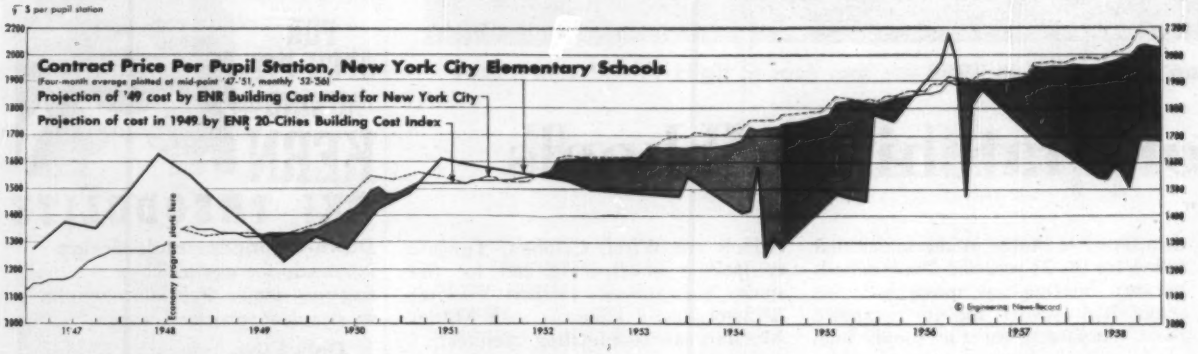
# School Costs Drop, While Prices Rise




Based on data from Bureau of Construction, Board of Education, New York, N.Y.




In the battle raging in New York City over school costs (ENR Dec. 18, p. 27) Controller Lawrence E. Gerosa charges that $100 million in seven years, 20% of the cost of new schools, has been wasted in "frills," in excessive architect fees and in single rather than multi-use of plans. No skulduggery is involved.

What the averages show is that while costs have gone up 53%, contract prices per pupil in elementary schools are up only 17%, in junior high schools only 9%.

Minimum elementary school prices are up 27% while maximum prices are up only 2.6%. For junior high schools minimum prices per pupil are up 11% while maximums are up 4%.

The spread per pupil between maximum and minimum price elementary schools has been cut from 43% in 1949 to 15% in 1958. For junior high schools this spread has been cut from 23% in '49 to 16% in '58.

Average contract prices per cubic foot are up 36.4% for elementary and 36.7% for junior high schools since 1949 against a 53% rise in labor and materials costs. Minimum prices are up 44.7% for elementary and 50.5% for junior high schools while maximum prices are up 24.3% for elementary and 18.3% for junior highs.

In rebuttal to the Gerosa charges the Board of Education claims that $110 million has been saved through lowered ceilings, squared off rooms, more economical furniture, wall materials, and types of construction, also that new designs can be built for less than schools built from old plans on hand.

As to frills, only 1 cent in $10 goes for "embellishment."

A school "austerity" program adopted in 1948 became effective in 1949. So 1949 prices are projected to show what school contract prices would be if they had matched the uptrend in materials and labor costs in the ENR Building Cost Index for New York City.

## Unit Prices of Schools Built in New York City—by Years

**Bureau of Design and Construction, Board of Education, City of New York**

### Elementary Schools

| | | per cu ft | | | per pupil sta | | | capacity, pupil stas | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | no. | min | aver | max | min | aver | max | min | aver | max |
| 1947 | (9) | $1.16 | $1.25 | $1.56 | $1,255 | $1,517 | $1,991 | 558 | 1,162 | 1,550 |
| 1948 | (5) | 1.20 | 1.30 | 1.43 | 1,399 | 1,581 | 1,784 | 806 | 1,094 | 1,433 |
| 1949 | (12) | 1.03 | 1.18 | 1.40 | 1,148 | 1,334 | 1,638 | 868 | 1,181 | 1,588 |
| 1950 | (11) | 1.04 | 1.20 | 1.55 | 957 | 1,357 | 1,612 | 302 | 1,036 | 1,581 |
| 1951 | (24) | 1.11 | 1.39 | 1.69 | 1,447 | 1,710 | 2,451 | 358 | 886 | 1,274 |
| 1952 | (9) | 1.23 | 1.40 | 1.72 | 1,391 | 1,518 | 1,689 | 494 | 969 | 1,310 |
| 1953 | (8) | 1.37 | 1.41 | 1.49 | 1,202 | 1,488 | 1,570 | 792 | 944 | 1,238 |
| 1954 | (9) | 1.14 | 1.33 | 2.01 | 1,216 | 1,354 | 1,580 | 302 | 1,073 | 1,292 |
| 1955 | (10) | 1.35 | 1.61 | 2.71 | 1,338 | 1,653 | 2,059 | 133 | 1,117 | 1,364 |
| 1956 | (12) | 1.52 | 1.69 | 1.97 | 1,467 | 1,811 | 2,361 | 842 | 1,244 | 1,631 |
| 1957 | (7) | 1.52 | 1.74 | 2.20 | 1,564 | 1,731 | 2,136 | 487 | 1,134 | 1,400 |
| 1958* | (11) | 1.49 | 1.61 | 1.74 | 1,463 | 1,558 | 1,680 | 1,265 | 1,342 | 1,851 |

### Junior High Schools

| | | per cu ft | | | per pupil sta | | | capacity, pupil stas | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | no | min | aver | max | min | aver | max | min | aver | max |
| 1947 | (2) | $1.21 | $1.23 | $1.25 | $1,270 | $1,277 | $1,284 | 1,810 | 2,068 | 2,326 |
| 1948 | (1) | 1.32 | 1.32 | 1.32 | 1,623 | 1,623 | 1,623 | 1,518 | 1,518 | 1,518 |
| 1949 | (3) | 0.99 | 1.09 | 1.26 | 1,261 | 1,380 | 1,553 | 1,518 | 1,519 | 1,519 |
| 1950 | (1) | 1.07 | 1.07 | 1.07 | 1,210 | 1,210 | 1,210 | 2,012 | 2,012 | 2,012 |
| 1951 | (5) | 1.32 | 1.36 | 1.38 | 1,408 | 1,511 | 1,645 | 1,588 | 1,842 | 2,020 |
| 1952 | (7) | 1.10 | 1.22 | 1.31 | 1,187 | 1,342 | 1,451 | 1,732 | 1,813 | 2,068 |
| 1953 | (7) | 1.10 | 1.22 | 1.29 | 1,176 | 1,280 | 1,462 | 1,788 | 1,968 | 2,183 |
| 1954 | (8) | 1.10 | 1.23 | 1.30 | 1,237 | 1,332 | 1,517 | 1,884 | 1,989 | 2,139 |
| 1955 | (11) | 1.25 | 1.44 | 1.63 | 1,370 | 1,580 | 1,904 | 1,772 | 1,980 | 2,114 |
| 1956 | (8) | 1.49 | 1.64 | 2.02 | 1,580 | 1,711 | 1,895 | 1,784 | 1,959 | 2,188 |
| 1957 | (4) | 1.53 | 1.65 | 1.74 | 1,730 | 1,799 | 1,815 | 1,799 | 1,924 | 2,183 |
| 1958* | (2) | 1.49 | 1.49 | 1.49 | 1,506 | 1,665 | 1,617 | 1,814 | 2,000 | 2,197 |

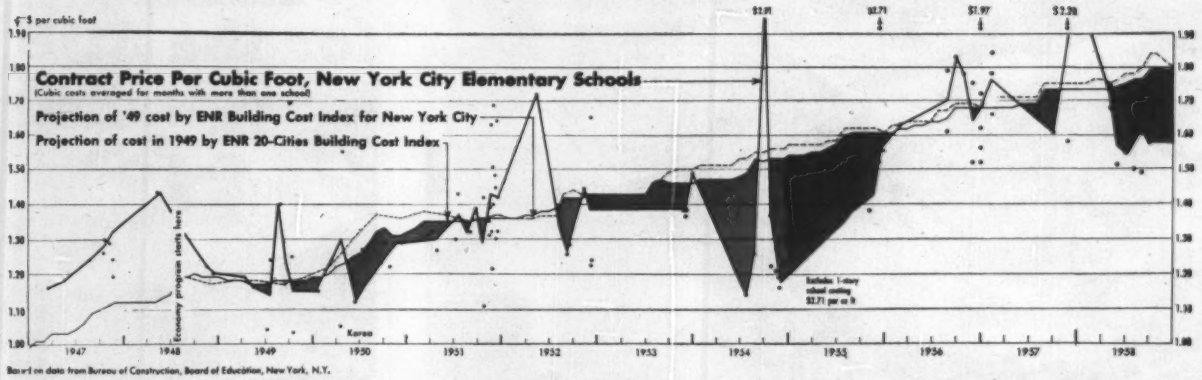
* Includes contracts awarded from Jan through Nov 7 Prices unadjusted for abnormal foundation or site costs, which makes '58 prices slightly higher than if adjusted as are prices for 1947–57

# Carquinez,

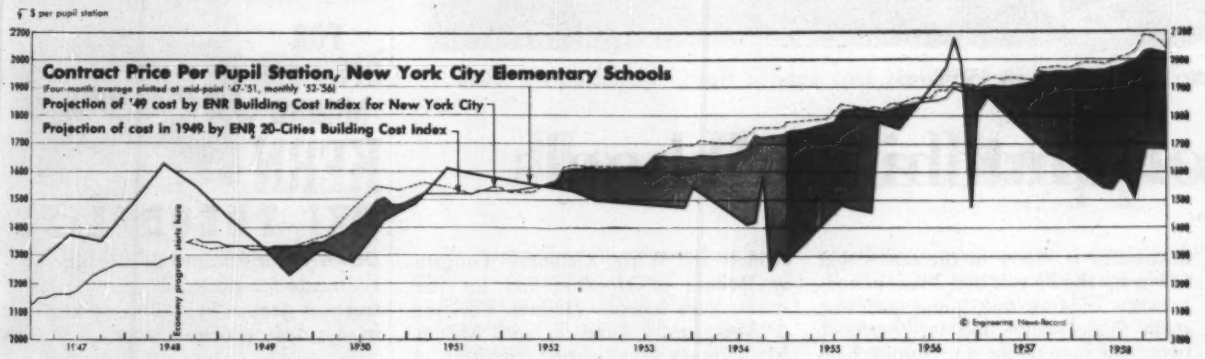
## the first major shop-welded bridge

USS United States Steel

# School Costs Drop, While Prices Rise




Based on data from Bureau of Construction, Board of Education, New York, N.Y.




In the battle raging in New York City over school costs (ENR Dec. 18, p. 27) Controller Lawrence E. Gerosa charges that $100 million in seven years, 20% of the cost of new schools, has been wasted in "frills," in excessive architect fees and in single rather than multi-use of plans. No skulduggery is involved.

What the averages show is that while costs have gone up 53%, contract prices per pupil in elementary schools are up only 17%, in junior high schools only 9%.

Minimum elementary school prices are up 27% while maximum prices are up only 2.6%. For junior high schools minimum prices per pupil are up 11% while maximums are up 4%.

The spread per pupil between maximum and minimum price elementary schools has been cut from 43% in 1949 to 15% in 1958. For junior high schools this spread has been cut from 23% in '49 to 16% in '58.

Average contract prices per cubic foot are up 36.4% for elementary and 36.7% for junior high schools since 1949 against a 53% rise in labor and materials costs. Minimum prices are up 44.7% for elementary and 50.5% for junior high schools while maximum prices are up 24.3% for elementary and 18.3% for junior highs.

In rebuttal to the Gerosa charges the Board of Education claims that $110 million has been saved through lowered ceilings, squared off rooms, more economical furniture, wall materials, and types of construction, also that new designs can be built for less than schools built from old plans on hand.

As to frills, only 1 cent in $10 goes for "embellishment."

A school "austerity" program adopted in 1948 became effective in 1949. So 1949 prices are projected to show what school contract prices would be if they had matched the uptrend in materials and labor costs in the ENR Building Cost Index for New York City.

## Unit Prices of Schools Built in New York City—by Years

**Bureau of Design and Construction, Board of Education, City of New York**

### Elementary Schools

| | no. | per cu ft min | per cu ft aver | per cu ft max | per pupil sta min | per pupil sta aver | per pupil sta max | capacity, pupil stas min | capacity, pupil stas aver | capacity, pupil stas max |
|---|---|---|---|---|---|---|---|---|---|---|
| 1947 | (9) | $1.16 | $1.25 | $1.56 | $1,255 | $1,517 | $1,991 | 558 | 1,162 | 1,550 |
| 1948 | (5) | 1.20 | 1.30 | 1.43 | 1,399 | 1,581 | 1,784 | 806 | 1,094 | 1,433 |
| 1949 | (12) | 1.03 | 1.18 | 1.40 | 1,148 | 1,334 | 1,638 | 858 | 1,161 | 1,588 |
| 1950 | (11) | 1.04 | 1.20 | 1.55 | 957 | 1,357 | 1,612 | 302 | 1,036 | 1,581 |
| 1951 | (24) | 1.11 | 1.39 | 1.69 | 1,447 | 1,710 | 2,451 | 358 | 886 | 1,274 |
| 1952 | (9) | 1.23 | 1.40 | 1.72 | 1,391 | 1,518 | 1,689 | 494 | 969 | 1,310 |
| 1953 | (6) | 1.37 | 1.41 | 1.49 | 1,202 | 1,488 | 1,570 | 792 | 944 | 1,238 |
| 1954 | (9) | 1.14 | 1.33 | 2.01 | 1,216 | 1,354 | 1,580 | 302 | 1,073 | 1,292 |
| 1955 | (10) | 1.35 | 1.61 | 2.71 | 1,338 | 1,653 | 2,059 | 133 | 1,117 | 1,384 |
| 1956 | (12) | 1.52 | 1.69 | 1.97 | 1,467 | 1,811 | 2,361 | 842 | 1,244 | 1,631 |
| 1957 | (7) | 1.52 | 1.74 | 2.20 | 1,564 | 1,731 | 2,136 | 487 | 1,134 | 1,400 |
| 1958* | (11) | 1.49 | 1.61 | 1.74 | 1,463 | 1,558 | 1,680 | 1,285 | 1,342 | 1,651 |

### Junior High Schools

| | no | per cu ft min | per cu ft aver | per cu ft max | per pupil sta min | per pupil sta aver | per pupil sta max | capacity, pupil stas min | capacity, pupil stas aver | capacity, pupil stas max |
|---|---|---|---|---|---|---|---|---|---|---|
| 1947 | (2) | $1.21 | $1.23 | $1.25 | $1,270 | $1,277 | $1,284 | 1,810 | 2,068 | 2,326 |
| 1948 | (1) | 1.32 | 1.32 | 1.32 | 1,623 | 1,623 | 1,623 | 1,818 | 1,818 | 1,818 |
| 1949 | (3) | 0.99 | 1.09 | 1.26 | 1,261 | 1,380 | 1,553 | 1,518 | 1,819 | 1,969 |
| 1950 | (1) | 1.07 | 1.07 | 1.07 | 1,210 | 1,210 | 1,210 | 2,012 | 2,012 | 2,012 |
| 1951 | (5) | 1.32 | 1.36 | 1.38 | 1,408 | 1,511 | 1,645 | 1,588 | 1,842 | 2,020 |
| 1952 | (7) | 1.10 | 1.22 | 1.31 | 1,187 | 1,342 | 1,451 | 1,732 | 1,813 | 2,088 |
| 1953 | (7) | 1.10 | 1.22 | 1.29 | 1,176 | 1,280 | 1,462 | 1,798 | 1,963 | 2,185 |
| 1954 | (8) | 1.10 | 1.23 | 1.30 | 1,237 | 1,322 | 1,517 | 1,884 | 1,989 | 2,138 |
| 1955 | (11) | 1.25 | 1.44 | 1.63 | 1,370 | 1,580 | 1,904 | 1,772 | 1,980 | 2,114 |
| 1956 | (8) | 1.49 | 1.64 | 2.02 | 1,580 | 1,711 | 1,898 | 1,764 | 1,988 | 2,166 |
| 1957 | (4) | 1.53 | 1.65 | 1.74 | 1,730 | 1,709 | 1,815 | 1,799 | 1,924 | 2,183 |
| 1958* | (2) | 1.49 | 1.49 | 1.49 | 1,506 | 1,665 | 1,617 | 1,814 | 2,008 | 2,197 |

* Includes contracts awarded from Jan through Nov 7 Prices unadjusted for abnormal foundation or site costs, which makes '58 prices slightly higher than if adjusted as are prices for 1947–57

# First major bridge application of (USS) "T-1" Steel

# saves 2,128 tons of steel

## and—because of lighter weight—material, foundation and shipping costs were greatly reduced

Nearly 500 of more than 1,000 gusset plates and 142 of 664 truss members of the new Carquinez Bridge were made from USS "T-1" Steel.

The weldability and 90,000* psi minimum yield strength of this remarkable constructional alloy steel went hand in hand with the designers' desire to keep dead weight to a minimum. For example, one of the highly stressed lower chord members, if made of A242 type steel at an allowable stress in tension of 17,620 psi, would have weighed 53,000 lbs. The same member, designed in USS "T-1" Steel at an allowable stress of 34,340 psi and with lower loading due to reduced weight of other members, weighed only 27,000 lbs., a savings of 26,000 lbs. for the single member. The total savings, thanks to USS "T-1" Steel, amounted to 2,128 tons of steel.

*Now 100,000 psi for plates up to 2½ inches thick.

Efficient use of USS "T-1" Steel was possible, of course, only with companion use of USS TRI-TEN High-Strength Low-Alloy Steel for truss members, gusset plates, and other parts of the bridge where stress, weight and cost calculations required strength intermediate between that of USS "T-1" Steel and that of structural carbon steel. USS TRI-TEN Steel's 46,000 psi minimum yield point and its weldability made it the steel to use.

**FOR MORE INFORMATION,** write on your company letterhead for a copy of our comprehensive booklets on USS "T-1" Steel and on USS TRI-TEN Steel—a veteran of many other major bridges. Or contact our nearest representative. You'll find him listed in your telephone directory under "United States Steel."

"T-1" Steel members shown in red.

# COMPLETED AHEAD OF SCHEDULE

## The second bridge across Carquinez Strait introduces revolutionary design and construction ideas

The traffic bottleneck that has plagued motorists on heavily traveled Route 40 between the San Francisco Bay area and the Sacramento Valley has finally been broken with the opening of a second bridge across the Carquinez Strait.

The new $20-million bridge, on the right, opening about a month ahead of schedule, also breaks engineering precedents. It is the *first* major bridge to be built with *shop-welded* instead of riveted truss members. It is the *first* to use the tremendously *strong* USS "T-1" Constructional Alloy Steel for highly stressed truss members. And it is the *first* bridge of its kind to have its joints connected with *high-strength* structural bolts.

At a glance, the two bridges, both of which were fabricated and erected by American Bridge, look identical. Yet, in design and construction, the new Carquinez span is vastly different from its 31-year-old counterpart. The old bridge is a riveted structure made with carbon and structural silicon steels and heat-treated eyebars. The new bridge has shop-welded members connected at the truss joints by high-strength structural bolts, and its design and construction take full advantage of modern, weldable, high-strength steels.

All in all, 2,910 tons of USS "T-1" Steel, a very high yield strength weldable alloy steel, 5,370 tons of USS TRI-TEN Steel, a weldable, high-strength low-alloy steel, and 6,440 tons of structural carbon steel went into the new 3,350-ft.-long bridge.

Built for the State of California.
Designed by California Division of Highways.
Fabricated and erected by American Bridge Division, USS.

**A COLOR MOVIE AVAILABLE SOON**—"Challenge at Carquinez-Project 56.14." Factual, entertaining, colorful film soon to be released covering this revolutionary bridge from design through construction. Ideal and enlightening for all engineering groups. 16mm film, 27 minutes long. Bookings now being accepted. Write to Pittsburgh Film Distribution Center, 525 William Penn Place, Pittsburgh 30, Pa.

*USS, "T-1" and Tri-Ten are registered trademarks*

**American Bridge Division of** USS **United States Steel**

# In the new Carquinez Bridge . . .

# 100% efficiency welds save 20% in weight of tension members

## . . . and the smooth, rivet-free surface is less vulnerable to corrosion . . . less costly to paint, too!

Fabrication by welding instead of riveting reduced the number of truss member shapes to *three:* H-sections, box sections, and box sections with an interior web. And, all members could be made from plates only, thus eliminating the use of connecting angles. Shop fabrication was simplified, because all stitch riveting was replaced by just four or eight continuous fillet welds, and the weight of structural members was reduced by the elimination of many extraneous detail parts.

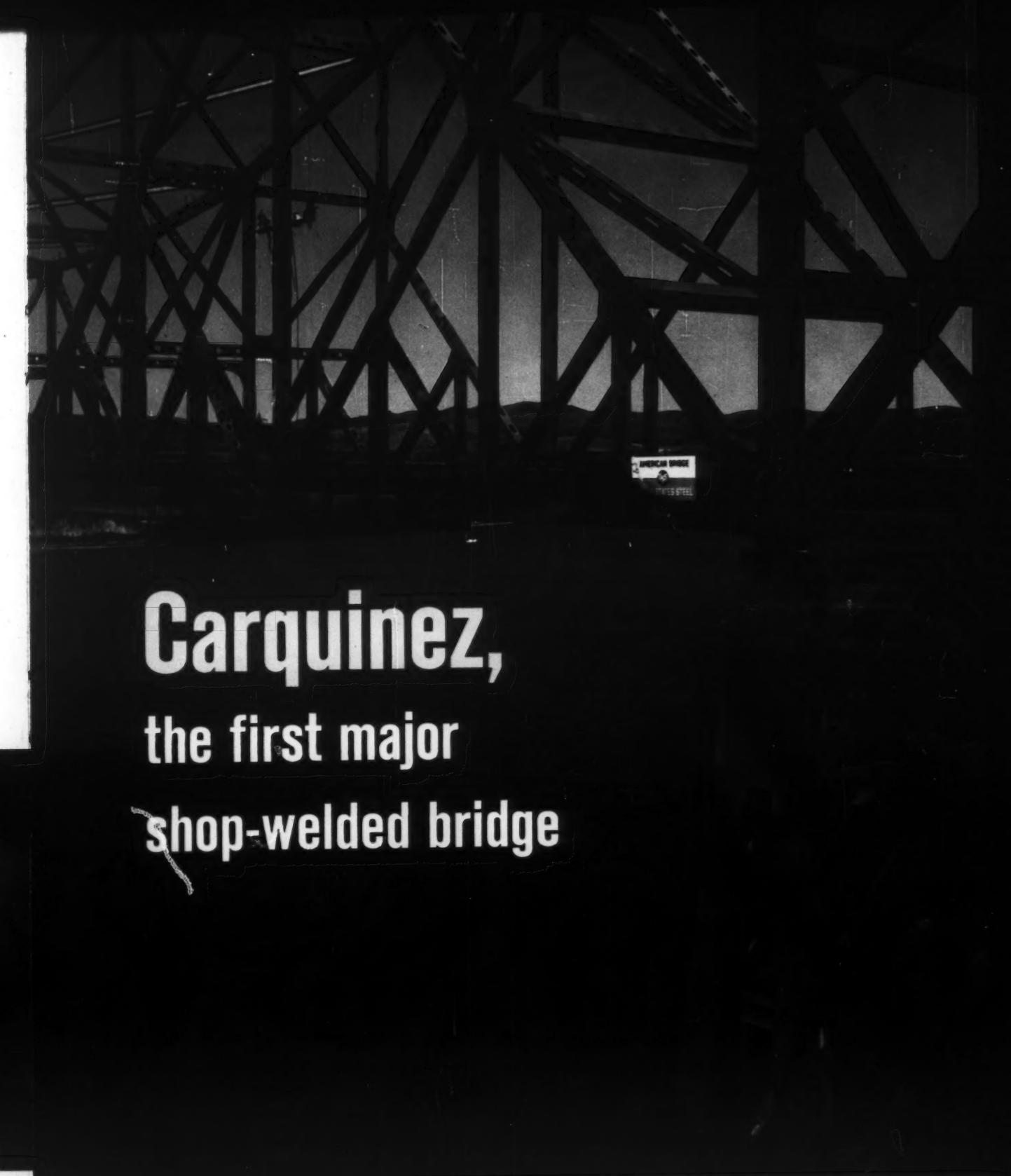
Another advantage of welded construction was that 100% efficiency butt welds made it possible to attach thicker plates at the ends of tension members to compensate for the loss in section and strength due to the holes required for connecting them at the truss joints. This novel use of welding saved 20% in the weight of tension members.

The smooth surfaces of the welded members—being free from rivet heads, lacing bars and other details vulnerable to corrosion—will reduce the frequency and cost of future painting.

Even for an organization that has built so many of the world's greatest bridges, this revolutionary structure was a real challenge, demanding a full range of welding equipment, proper procedures and highly skilled, experienced personnel. The challenge was answered on November 25, 1958, weeks ahead of schedule, when this clean, modern span broke the bottleneck on Route 40 and gave bridge designers another avenue of opportunity as well.

Fully automatic and semi-automatic submerged arc and manual shielded metal arc welding were involved in the shop fabrication of this revolutionary bridge.

American Bridge Division of USS United States Steel

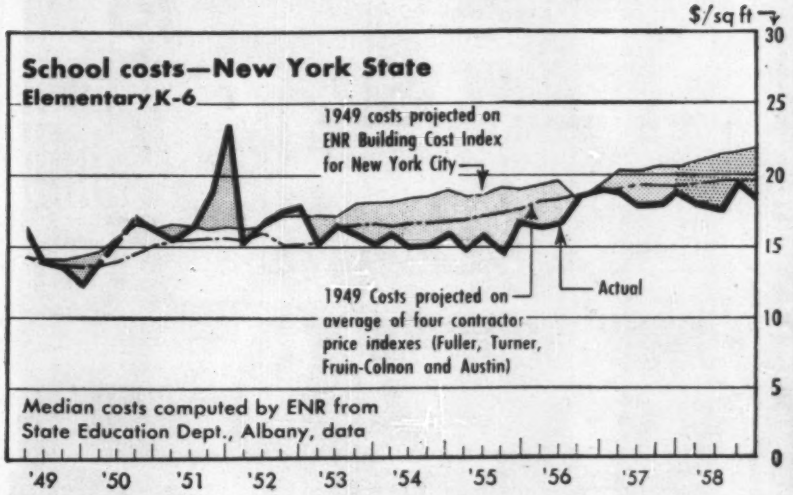



# Carquinez,

## the first major shop-welded bridge

United States Steel

# Prices Rise Less Than Costs




## School Costs Per Square Foot in New York State

**State Education Department, Division of School Buildings and Grounds**

| | No. of Schools K-6 Total | Elementary, K-6 Dollars per sq ft for schools with . . . One Large Unit* Min | Med | Max | Two Large Units* Min | Med | Max | Three Large Units* Min | Med | Max | No. of Schools 7-12 Total | Secondary, 7-12 Dollars per sq ft Min | Med | Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1948..... | 29 | $10.40 | $14.00 | $19.20 | $12.00 | $14.60 | $18.70 | ..... | ..... | ..... | 4 | $13.20 | $13.55 | $16.20 |
| 1956..... | 52 | 11.75 | 16.40 | 23.60 | 11.90 | 15.70 | 20.25 | $14.90 | $14.90 | $15.90 | 13 | 12.55 | 17.10 | 18.50 |
| 1956..... | 53 | 12.90 | 17.85 | 23.80 | 13.25 | 17.65 | 21.10 | 16.50 | 16.80 | 17.10 | 7 | 15.40 | 18.15 | 20.90 |
| 1957..... | 50 | 14.65 | 19.28 | 25.20 | 12.90 | 18.10 | 21.75 | ..... | 18.70 | ..... | 10 | 16.40 | 18.61 | 20.60 |
| '55, Q1.. | 17 | 13.60 | 16.40 | 17.35 | 12.70 | 14.53 | 15.90 | ..... | 14.90 | ..... | 4 | 12.55 | 15.15 | 17.50 |
| Q2.. | 17 | 11.75 | 15.83 | 19.90 | 11.90 | 15.70 | 17.20 | ..... | ..... | ..... | 3 | 15.60 | 17.20 | 17.30 |
| Q3.. | 8 | 17.50 | 19.25 | 19.90 | 15.90 | 16.90 | 20.25 | ..... | ..... | ..... | 4 | 15.30 | 16.40 | 18.50 |
| Q4.. | 12 | 15.50 | 16.95 | 23.60 | ..... | ..... | ..... | ..... | 15.90 | ..... | 2 | 18.25 | 18.33 | 18.40 |
| '56, Q1.. | 11 | 14.95 | 15.10 | 18.40 | 14.45 | 16.80 | 18.50 | ..... | ..... | ..... | 2 | 16.75 | 18.33 | 20.90 |
| Q2.. | 18 | 14.40 | 16.50 | 18.55 | 14.60 | 18.00 | 19.00 | ..... | 17.10 | ..... | 2 | 15.80 | 16.98 | 18.15 |
| Q3.. | 9 | 12.90 | 19.10 | 21.60 | 14.15 | 18.50 | 21.10 | ..... | 16.50 | ..... | 2 | 15.40 | 17.25 | 19.10 |
| Q4.. | 15 | 16.00 | 20.70 | 23.80 | 13.25 | 18.85 | 21.00 | ..... | ..... | ..... | 1 | ..... | 18.60 | ..... |
| '57, Q1.. | 11 | 17.80 | 18.58 | 19.35 | 15.70 | 19.23 | 21.75 | ..... | 18.20 | ..... | 1 | ..... | 18.51 | ..... |
| Q2.. | 14 | 14.65 | 19.60 | 25.20 | 12.90 | 18.10 | 19.00 | ..... | ..... | ..... | 5 | 18.70 | 19.35 | 20.00 |
| Q3.. | 11 | 18.60 | 19.15 | 19.40 | 14.40 | 17.78 | 18.40 | ..... | ..... | ..... | 3 | 16.40 | 19.50 | 20.60 |
| Q4.. | 14 | 16.95 | 20.80 | 25.20 | 17.60 | 19.00 | 19.60 | ..... | ..... | ..... | 1 | ..... | 18.90 | ..... |
| '58, Q1.. | 7 | 18.20 | 18.30 | 18.45 | 16.60 | 17.48 | 19.45 | ..... | ..... | ..... | 2 | 16.60 | 17.30 | 18.00 |
| Q2.. | 9 | 16.65 | 18.55 | 20.30 | 16.30 | 17.80 | 19.35 | ..... | ..... | ..... | 4 | 16.00 | 17.13 | 19.70 |
| Q3.. | 6 | 16.95 | 19.65 | 22.30 | 16.65 | 19.85 | 20.30 | ..... | ..... | ..... | .. | ..... | ..... | ..... |
| Q4.. | 4 | 19.45 | 20.13 | 20.80 | 15.80 | 16.38 | 16.95 | ..... | ..... | ..... | .. | ..... | ..... | ..... |

*** Large Unit includes a general purpose room, gymnasium, auditorium, multi-purpose or other group activity room. These are costs based on the four contracts—general construction, plumbing, electrical, heating and ventilating. They include built-in features, but no movable furniture or equipment. Some minor site improvement may be included, but no major site work and no land costs.**

Elementary, K-6 schools in New York State drew contract prices ranging from $15.80 to $22.30 per sq ft in 1958. Median prices dropped to $17.80 in the 2nd quarter, were $18.20 in 1st and 4th quarters and high at $19.75 in the 3rd quarter.

While costs of labor and materials since 1949 are up 49% in New York City, for the second quarter of 1958, average contract prices of elementary, K-6 schools in New York State are up only 32.5% where one large unit is included, and 21.9% for schools having two large units. Average secondary, 7-12 schools are up 26.4% in the same period.

The rise has been in the minimum price elementary schools; 60% for K-6s with one large unit and 35.8% with two large units. Corresponding maximum price schools are up only 5.7% and 3.5%. The spread between maximum and minimum price schools with one large unit was reduced from 85% in 1949 to 22% in the second quarter of 1958 and for two large unit schools from 56% to 19%.

In the 7-12 schools, however, the minimum price schools are up only 21.2% and the maximum price schools 21.6% with the spread between maximum and minimum the same at 23%.

The square foot prices shown for the third and fourth quarters are subject to revision with more returns in.


WELDED or RIVETED
STEEL PLATE
FABRICATION

- Boiler Casings
- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Fan and Blower Housings
- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Tank Turrets
- Gun Mounts
- Heavy Truck Bodies
- Engine Frames and Bases
- Crawler Frames
- Press Platens and Beds
- Press Columns
- Heavy Machinery Parts and Assemblies
- Gas Seal Hoods for Blast Furnaces
- Furnace Roof Rings
- Design Conversion of Castings to Weldments

MACHINING
- Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

STRUCTURAL STEEL
- For Buildings, Bridges and Special Purpose Structures
- Drum Gates
- Roller Gates
- Taintor Gates
- Taintor Valves
- Protection Angles

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Branch Offices in New York and Chicago
MAHON

*Fourth Quarterly Round up:*

# Where The Building Dollar Goes

This is the tenth report in the series. Earlier reports were published in ENR Oct. 8, 1953, pp. 148–149; Sept. 29, 1955, p. 212; July 5, 1956, p. 137; Aug. 2, 1956, p. 62; Dec. 6, 1956, p. 208; Oct. 17, 1957, pp. 279–281; Mar. 20, 1958, p. 96 and Sept. 18, 1958, p. 100.

## Unit and Ratio Costs Supplied through the Courtesy of George F. Driscoll Co., New York City, Henry C. Beck Co., Dallas, Dewey A. Hicks, Amari Tc. Tex., Fred W. Entenman, Inc., Toledo, Ohio, Blitman Construction Corp., New York City, Harmon Construction Co., Oklahoma City, Okla.

| TYPE OF: Building | Circular Bank | Office Bldg. | Auto Parts Supply Depot | Hospital | Idlewild Hotel | Motel | Apartment Houses | | |
|---|---|---|---|---|---|---|---|---|---|
| Construction: frame | Reinf conc | Concrete | Steel | Steel | Reinf conc | Brick & Wood | Std. Cols-Conc Lift Slabs | Steel | Concrete |
| outside walls | Brick | Metal-Glass Curtain Walls, 3 sides | Insul. Alum. Front Brick 3 sides | Brick | Brick | Brick | Brick & Curtain Wall | Brick | Concrete |
| Date construction started | Nov. 1957 | June, 1957 | Nov. 1956 | Mar. 1957 | Jan. 1957 | 1958 | Aug. 1958 | Jan. 1957 | Oct. 1958 |
| Location, city | Brooklyn, N. Y. | Dallas, Tex. | Atlanta, Ga. | N. Y. C. | N. Y. C. | Amarillo, Tex. | Sylvania, Ohio | N. Y. C. | Little Rock, Ark. |
| SIZE OF BUILDING: | | | | | | | | | |
| Height, stories | 2 & basement | 19 | 1 | 11 | 6 & basement | 2 | 7 | 20 | 9 |
| Floor area, sq ft | 25,850 sf | 200,609 sf | 230,023 sf | 278,500 sf | 164,000 sf | 68,000 sf | 95,000 sf | 505,000 sf | 101,801 sf |
| Volume, cu ft | 420,000 cf | 2,336,000 cf | 5,461,280 cf | 3,302,200 cf | 1,882,000 cf | 544,000 cf | 983,000 cf | 5,554,267 cf | 954,657 cf |
| % air conditioned | 100% | 100% | 9.8% | 60% | 100% | 95% | 0% | *100% | 100% |
| RANGE of COST of this type of building | | Min. Avg. Max. Actual | Min. Avg. Max. Actual | Actual | | Min. Avg. Max. | Min. Avg. Max. | Min. Avg. Max. | Actual |
| Cost $ per sq ft | ..... | $11.00 $13.50 $16.00 $12.07 | $9.00 $11.00 $13.00 $11.62 | $26.72 | | $7.00 $8.60 $11.00 | $17.00 $20.00 $24.00 | | $12.92 |
| Cost $ per cu ft | ..... | ..... ..... ..... ..... | ..... ..... ..... ..... | $2.25 | | $0.93 $1.07 $1.38 | $1.65 $1.90 $2.25 | $1.15 $1.20 $1.30 | $ 1.38 |
| Cost $ per unit of capacity | ..... | ..... ..... ..... ..... | ..... ..... ..... ..... | ..... | | Apt. | $9,500 $11,000 $13,500 Rm | $4,000 $4,500 $5,000 Apt. | $9,969 |
| Unit of capacity | ..... | ..... | ..... | ..... | 320 Rooms | 140 units | 171 Apts. | | 132 Apts. |
| ENR BUILDING COST INDEX (1913–100) | 517 | 504 | 500 | 501 | 502 | | 526 | 502 | 537 |
| PRINCIPAL ITEMS OF COST | | | | | % of Total Cost | | | | |
| Excavation and Site | 2.52 | 1.82 b | 10.60 n | 6.92 | 3.39 | 2.9 | $64,900 4.05 | 1.73 | 5.5 |
| Foundations | | 1.69 c | 2.68 | | | 4.6 | 42,800 af 2.67 | 0.87 | 4.4 |
| Structural Frame | 22.21 | 20.77 | 21.50 p | 9.95 | 17.52 | 3.0 | 56,700 ag 3.54 | 19.90 | 20.00 |
| Cement Finish Work | ..... | 1.13 | 2.28 q | 10.05 v | ..... | ..... | 211,500 ah 13.20 | 14.25 ap | 1.4 |
| Exterior Masonry | 13.20 | 3.73 | 3.59 | 12.45 w | 5.21 | 10.6 | 109,100 6.81 | 8.76 | ..... |
| Metal Wall Panels | ..... | 9.70 d | 1.89 | ..... | ..... | ..... | 178,800 aj 11.16 | ..... | ..... |
| Interior Partitions | In Masonry | In Lath & Plaster e | 1.49 | In Ext. Partitions | In Masonry | 5.0 | 146,200 9.11 | In Exterior Masonry | 1.5 at |
| Carpentry and Millwork | 0.44 | 1.12 | 0.23 | 2.71 | 3.15 | 22.4 | 25,400 1.58 | 1.89 | 2.5 |
| Sash and Glazing | 0.45 a | 0.31 f | 1.74 | 1.60 | 1.40 a | 1.5 | In Curtain Wall | 2.05 | 2.9 |
| Doors | | In Hollow Metal | In Millwk & Hollow Met Wk | 0.05 x | ..... | In Millwork | 38,200 ak 2.38 | 1.06 aq | In Millwork |
| Roofing | 1.50 | 0.73 g | 5.17 r | 1.37 z | 0.90 | 2.1 | 18,000 1.12 | 0.06 | 0.7 |
| Insulation | In Roofing | ..... | In Roofing | 0.36 aa | 0.31 | 1.1 | ..... | 0.02 | In Roofing |
| Water & Dampproofing | 0.70 | 0.31 | 0.43 | 0.70 | 0.32 | ..... | 1,300 0.08 | 0.01 | 0.2 |
| Metal Lath, Furring, Plaster | 3.78 | 4.04 | 0.34 | 2.92 | 5.50 | ..... | In Interior Partitions | 8.25 | 11.2 av |
| Hollow Metal Work | 0.79 | 0.88 | 0.21 | 3.02 ab | 1.90 | 0.5 | In Doors & Frames | In Doors & Metal Bucks | 2.6 |
| Misc. Iron & Ornamental Metal | 8.71 | 1.32 | 3.29 s | 2.89 | 8.04 | 0.3 | 23,000 1.44 | 0.95 | 1.2 |
| Tile, Terrazzo and Marble | 2.85 | 1.80 | 0.27 | 2.20 | 2.48 | 4.2 | 40,600 2.53 | 2.78 ar | 2.4 |
| Floor Covering | 0.88 | 0.10 h | 0.17 | 0.77 | 0.10 | Owner furnishes | 15,700 0.98 | 2.48 | 2.2 |
| Painting | 0.98 | 0.77 h j | 1.91 | 2.11 | 1.09 | 4.9 | 34,300 2.14 | 1.00 | 2.2 |
| Finish Hardware | 0.69 | 0.39 h | 0.21 | 1.14 | 0.70 | 0.7 | 23,100 1.44 | 0.38 | 0.8 |
| Acoustical Ceilings | 1.07 | 2.17 k | 0.61 | 1.95 ac | 0.50 | 0.1 | 7,000 0.43 | ..... | In Plaster |
| Plumbing | 3.92 | 21.68 | 14.50 | 6.85 | 9.15 | 14.4 | 123,300 7.70 | 7.40 | 24.6 |
| Heating, Vent. & Air Condition | 9.82 | 10.26 m | 13.15 | 15.30 | 18.20 | 10.4 | 151,000 9.43 | 8.15 | |
| Elec Work & Light Fixtures | 7.97 | 14.87 | ..... | 10.66 | 13.95 | 9.8 | 126,000 7.87 | 5.40 | 7.4 |
| Elevators | 2.06 | ..... | 1.39 t | 2.76 ad | 2.82 | ..... | 64,800 4.04 | 4.20 | 4.2 |
| Intercom Systems & Television | ..... | ..... | 0.57 | ..... | ..... | Owner furnishes | ..... ..... | 0.24 | ..... |
| Kitchen Equipment | 1.32 | ..... | ..... | ..... | 2.23 | Owner furnishes | 72,800 4.55 | 3.40 | ..... |
| Vaults | 7.07 | ..... | ..... | ..... | ..... | ..... | ..... ..... | ..... | ..... |
| Signs | 0.76 | ..... | ..... | ..... | 0.25 | ..... | ..... ..... | ..... | ..... |
| Toilet Partitions & Access | ..... | 0.47 | ..... | ..... | 0.62 | ..... | ..... ..... | ..... | ..... |
| Chutes | ..... | 0.24 | ..... | ..... | 0.12 | ..... | 3,100 0.20 | In Miscellaneous | ..... |
| Metal Toilet Partitions, Shelves & Lockers | ..... | ..... | ..... | 0.81 | ..... | ..... | ..... ..... | ..... | ..... |
| Sprinklers | ..... | ..... | 3.61 | 0.17 | ..... | ..... | ..... ..... | ..... | ..... |
| Ash Hoist, Scales, Linen Chute | ..... | ..... | ..... | 0.17 | ..... | ..... | ..... ..... | ..... | ..... |
| Phar. & Lab. Equipment | ..... | ..... | 5.95 | 0.12 | ..... | ..... | ..... ..... | ..... | ..... |
| Conveyor System | ..... | ..... | 1.32 | ..... | ..... | ..... | ..... ..... | ..... | ..... |
| Elevated Water Tank | ..... | ..... | 0.78 | ..... | ..... | ..... | ..... ..... | ..... | ..... |
| Dock Leveler | ..... | ..... | ..... | ..... | ..... | ..... | ..... ..... | ..... | ..... |
| Swimming Pool | ..... | ..... | 0.12 u | ..... | 0.15 | 1.5 | 24,400 am 1.55 | 4.77 as | In Misc. |
| Miscellaneous | 0.31 | ..... | | ..... | | ..... | | | 2.1 aw |
| | | | | | | | | | ** Total Cost $1,315,950 |

a Glazing only
b Incl $8,963 for demolition
c Inc underpinning adjoining bldg
d Metal, glass curtain wall
e No tenant partitions included
f Mostly in curtain wall work. Inc store front work
g Inc sheet metal
h No tenant areas
j Inc special wall covering
k Inc tenant areas
m Inc fixtures and outlets, tenant areas
n Inc RR siding
p Inc slabs on grade & metal roof deck
q Inc 1" traprock floor topping
r Inc 4" perlite fill
s Inc overhead doors
t Pneumatic tube system
u Metal lockers
v Inc concrete work
w Incl interior partitions, stone, T.C.
x Vault, overhead & folding
z Inc sheet metal
aa Inc x-ray protection
ab Inc metal cabinets & partitions
ac Perf met. grid & plastic
ad Inc dumbwaiters
af Inc caissons
ag Steel struct cols & other stl
ah Framing conc slabs & lifting
aj And curtain walls
ak Inc frames
am Alum entrances, medicine cabinets, landscaping, drape tracks
ap Inc arches. All concrete
aq Metal & backs
ar And granite
as Mail chute, rolling doors, venetian blinds & general
at Masonry
av Partitions
aw Metal cabinets
* Exc kitchens & baths
** Inc swim pool, rental area & storage

**$45 MILLION NUCLEAR POWER PLANT** gets the best in portable heat from Herman Nelson units. Located 50 miles southwest of Chicago, the plant is being built by General Electric for Commonwealth Edison and six other large utilities. Bechtel Corp. is the engineer-constructor. Heaters are in use 24 hours a day, seven days a week, for curing the concrete.

*count on*

# HERMAN NELSON

## PORTABLE AIR HEATERS

*. . . everybody else does!*

**15° BELOW ZERO** kept Herman Nelson heaters at work supplying safe heat for building the Sparrow Hospital annex, Lansing, Mich. Contractor is Reniger Construction Company.

**DRYING OUT BIG MOTORS,** preheating and thawing equipment, are jobs that call for safe Herman Nelson Portable Heaters at Penn-Dixie Cement's West Des Moines plant.

*Get Free Contractors Weather Forecast Service*

AAF

**AMERICAN AIR FILTER COMPANY, INC.**
**Portable Products Dept. 27 • Louisville 8, Ky.**

Rush complete literature on portable heaters. Also send your monthly Weather Forecast Chart, at no cost.

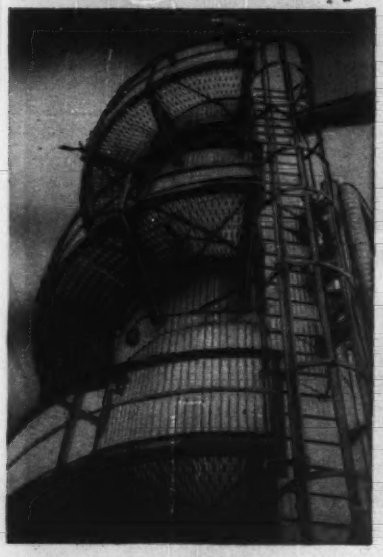
NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

# RAIN OR SNOW CAN MAKE CATWALKS DANGEROUS



Walkways, catwalks and treads made of solid wood, metal or other material can collect snow, rainfall, grease or oil and become dangerously slippery.

But these walking surfaces, made of an open mesh of metal bars on edge, cannot collect these substances, leaving the surface always *clean*, dry and tractional for safer access to high places.

As founders of the grating industry, the Irving Company can draw upon over half a century of experience to supply you with quality grating products for catwalks, treads and other practical and economical uses.

**"A FITTING GRATING FOR EVERY PURPOSE"**

*Write for our General Grating Catalog.*

**IRVICO**

**IRVING SUBWAY GRATING CO., Inc.**
ORIGINATORS of the grating industry

**Offices and Plants at**
**5063 27th St., LONG ISLAND CITY 1, N. Y.**
**1863 10th St., OAKLAND 23, CALIFORNIA**


*Fourth Quarterly Round up:*

## ▶ Where School and Dormitory Dollars Go

**DORMITORY IN SPOKANE, WASH.,** to house 160 students on 4 floors, costs $4,017 per student.

**Unit Ratio Costs Supplied through the Courtesy of Eugene Simpson & Bro., Alexandria, Va., and Johnson-Busboorn-Rauh, Spokane, Wash.**

| TYPE OF: Building<br>Construction: frame<br>outside walls | Jr. High School<br>Conc & Steel<br>Brick | Youth Center Reform School<br>Misc. — 18 Bldgs.<br>Brick | Dormitory<br>Concrete<br>Brick |
|---|---|---|---|
| Date construction started | Feb. 1958 | Sept. 1958 | Oct. 1958 |
| Location, city | Arlington, Va. | Lorton, Va. | Spokane, Wash. |
| SIZE OF BUILDING:<br>Height, stories<br>Floor area, sq ft<br>Volume, cu ft | 1–2<br>149,710 sf<br>2,483,520 cf | 1–3<br>180,000 sf | 4<br>36,500 sf<br>208,872 cf |
| % air conditioned | 0% | 0% | 0% |

| RANGE OF COST OF THIS type of building: | Min | Avg | Max | Actual | | |
|---|---|---|---|---|---|---|
| Cost $, sq ft | $15.00 | $15.80 | $18.00 | $15.80 a | | |
| $, cu ft | 0.90 | 1.00 | 1.15 | 0.95 a | | |
| Cost $, unit of capacity | | | $2,490/pupil a | | $7,758/persons a | $4,017/student |
| Unit of capacity | | 950 pupils | | | 500 persons | 160 students |
| ENR BUILDING COST INDEX (1913=100) | | 518 | | | 535 | 500 |

| PRINCIPAL ITEMS OF COST | Cost | % of Total Cost a | % of Total Cost b | Cost | % of Total Cost a | % of Total Cost b | Cost | % of Total Cost |
|---|---|---|---|---|---|---|---|---|
| Excavation & Site Improvements | $69,000 | 2.92 | 2.87 | $528,011 c | 13.61 | 13.38 | $10,483 | 1.63 |
| Foundations | 91,000 | 3.85 | 3.78 | 46,000 | 1.19 | 1.17 | 42,000 | 6.53 |
| Structural Frame | 490,000 | 20.71 | 20.35 | 485,000 | 12.50 | 12.29 | 121,508 | 18.90 |
| Cement Finish Work | 10,000 | 0.42 | 0.42 | 5,000 | 0.13 | 0.13 | 15,001 | 2.33 |
| Exterior Masonry | 120,000 | 5.07 | 4.98 | 220,000 | 5.67 | 5.57 | 40,325 | 6.27 |
| Metal Wall Panels | 33,000 | 1.39 | 1.37 | ..... | .... | .... | ..... | .... |
| Interior Partitions | 217,000 | 9.17 | 9.01 | 243,000 | 6.26 | 6.16 | ..... | .... |
| Carpentry and Millwork | 89,000 | 3.76 | 3.70 | 141,000 | 3.63 | 3.57 | 76,323 | 11.88 |
| Sash and Glazing | 78,000 | 3.30 | 3.25 | 149,000 | 3.84 | 3.78 | 25,848 | 4.02 |
| Doors | 20,000 | 0.85 | 0.83 | 46,000 | 1.19 | 1.17 | 2,800 | 0.44 |
| Roofing | 74,000 d | 3.13 | 3.07 | 169,000 e | 4.36 | 4.28 | 17,899 | 2.79 |
| Insulation | 16,000 | 0.68 | 0.67 | 7,000 | 0.18 | 0.18 | 3,811 | 0.59 |
| Waterproof & Dampproofing | 23,000 | 0.97 | 0.95 | 2,000 | 0.05 | 0.05 | ..... | .... |
| Metal Lath, Furring, Plaster | 37,500 | 1.59 | 1.56 | 149,000 | 3.84 | 3.78 | 20,343 | 3.17 |
| Hollow Metal Work | 27,000 | 1.14 | 1.13 | 21,000 | 0.54 | 0.53 | 16,288 | 2.53 |
| Misc. Iron & Ornamental Metal | 64,000 | 2.71 | 2.66 | 70,000 | 1.80 | 1.78 | 21,729 | 3.38 |
| Tile, Terrazzo & Marble | 44,000 f | 1.86 | 1.83 | 39,000 | 1.01 | 0.99 | 19,232 | 2.99 |
| Floor Covering | 16,000 | 0.68 | 0.66 | 21,000 | 0.54 | 0.53 | 7,397 | 1.15 |
| Painting | 25,000 | 1.10 | 1.08 | 51,000 | 1.31 | 1.29 | 18,410 | 2.87 |
| Finish Hardware | 30,000 | 1.27 | 1.25 | 42,000 | 1.09 | 1.06 | 5,980 | 0.93 |
| Acoustical Ceilings | 54,000 | 2.28 | 2.24 | 7,000 | 0.19 | 0.18 | 4,190 | 0.65 |
| Plumbing | 127,000 | 5.37 | 5.27 | 220,000 | 5.67 | 5.57 | 113,637 | 17.68 |
| Heat Ventilation | 262,000 | 11.07 | 10.88 | 390,000 | 10.05 | 9.88 | | |
| Electrical Work & Lgt Fixt. | 167,500 | 7.08 | 6.96 | 300,000 | 7.73 | 7.60 | 36,136 | 5.62 |
| Elevators | ..... | .... | .... | ..... | .... | .... | 23,437 | 3.65 |
| Power Plant (inc Distr) | ..... | .... | .... | 375,000 | 9.67 | 9.50 | ..... | .... |
| Intercom Systems & TV | 5,500 | 0.23 | 0.23 | ..... | .... | .... | ..... | .... |
| Classroom Equipment | 78,000 | 3.30 | 3.24 | ..... | .... | .... | ..... | .... |
| Gymnasium Equipment, etc. | 52,000 | 2.20 | 2.16 | 123,000 | 3.17 | 3.12 | ..... | .... |
| Jail | ..... | .... | .... | 20,000 | 0.52 | 0.51 | ..... | .... |
| Lockers, etc. | 45,000 | 1.90 | 1.87 | 10,000 | 0.26 | 0.25 | ..... | .... |
| Miscellaneous | 121 | .... | .... | ..... | .... | .... | ..... | .... |
| Overall Cost | | | | | | | $642,747 | |
| Exc Rough Site Grading | $2,365,621 | .... | .... | $3,879,011 | .... | .... | ..... | .... |
| Rough Site Grading | 42,000 | .... | 1.74 | 68,000 | .... | 1.70 | ..... | .... |
| Inc Rough Site Grading | $2,407,621 | .... | .... | $3,947,011 | .... | .... | ..... | .... |

a Exc rough site grading
b Inc rough site grading
c Large site
d Inc. $46,000 gypsum roof
e Inc $48,000 gypsum roof
f Inc exterior decorative stone

# check these HENDRIX features...

**BONUS LOADS**

**LESS MAINTENANCE**

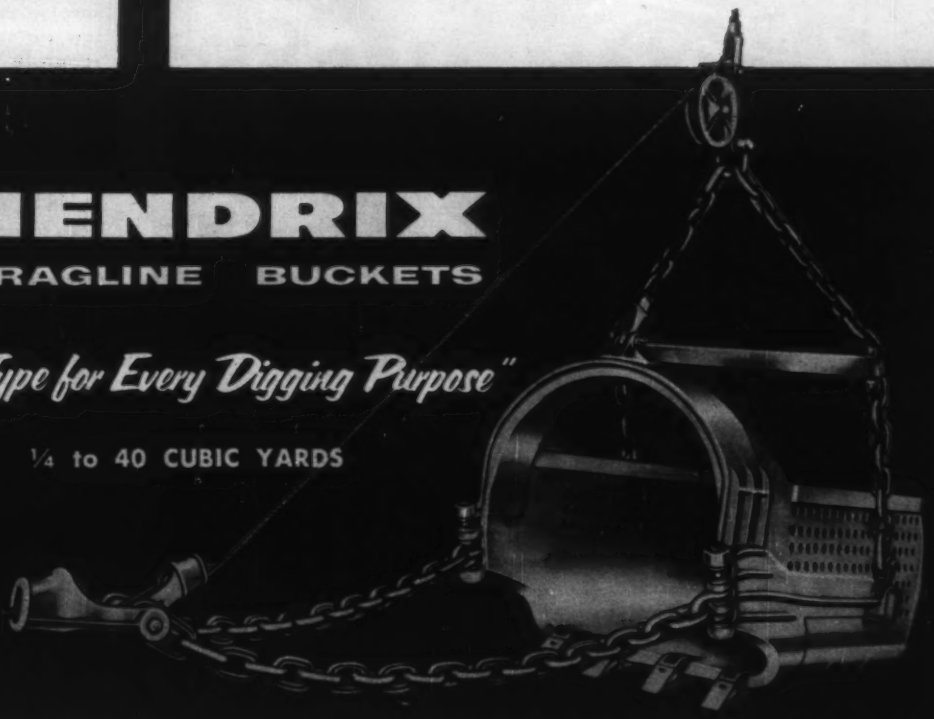
**EXTRA PROFITS**

- ✓ LESS BUCKET WEIGHT, for greater capacity.
- ✓ ALL-WELDED CONSTRUCTION for greater strength and durability.
- ✓ 14% MANGANESE STEEL chains, fittings and reversible tooth points.
- ✓ PERFECT PERFORMANCE . . . easier handling . . . faster loading . . . cleaner, smoother dumping.

## HENDRIX
DRAGLINE BUCKETS

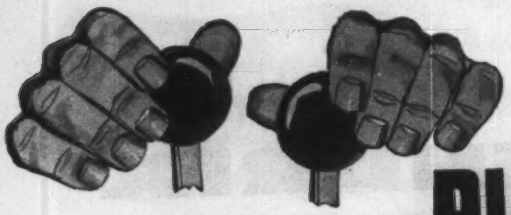
*"A Type for Every Digging Purpose"*

¼ to 40 CUBIC YARDS



*All Hendrix Buckets available without perforations*

**HENDRIX MANUFACTURING CO., Inc.**
MANSFIELD, LOUISIANA



**Your operators' fingertips can control this greater dozing capacity**

# Planet-Powered "24's"

## UNMATCHED FOR BENCHING, SIDE-CASTING

The TD-24 outproduces comparable crawlers on benching or side-casting without "nosing" into the bank, loss of working speed or traction—despite side-draft of offset load. TD-24 operator counteracts rear-end "slueing" by operating the load-side track in high speed-range while keeping the outside track in low range. This exclusive, separate, power-on-either-track feature provides bonus-load *follow-through*. Operators of king-size steering-clutch crawlers, by contrast, must release the steering clutch on the outside track to keep tractor pushing forward. This kills half the productive power and traction!

## CYCLE SHORTENING FASTER REVERSE SPEEDS

Faster reverse speeds let the TD-24 operator cut cycle time and boost production on shuttle-dozing, especially on long pushes. At the end of the pass, TD-24 operator depresses the decelerator pedal, and quickly shifts to a fast reverse speed. As he highballs back for another pass, he uses Hi-Lo planetary shifting as needed to speed repositioning the "24" for the next pass.

# doze up to 50% more paydirt!

**With two-finger ease** your operators can hand you a paydirt dozing dividend of up to 50%, on International TD-24 crawler tractors. Exclusive Planet Power steering, plus fast reverse speeds up to 7.5 mph, arm the TD-24 operator to outblade steering clutch competitors by amazing margins!

Benching, bank-cutting, side-casting, or blading around the curve, the TD-24's dozer keeps cutting—keeps paydirt on the move—doesn't spill the extra-profit margin with "jerky" steering. Planet Power steering gives your operator full-time "live" power on both tracks—eliminates load-losing, power-wasting "dead-track drag" in turns—clips vital minutes from shuttle-dozing cycles!

Your operator "pours on" full-load power by shifting the TD-24 into first gear and flicking steering levers into low range. Two fingers can then instantly power-shift the Hi-Lo planetary into load-matching high range!

At the end of the pass, your TD-24 operator presses the engine decelerator for quick-shifting to fast reverse, zips back for another pass. Hi-Lo planetary levers give two separate speeds in any forward or reverse gear selected!

**Prove to yourself** how your operators can boost dozing dividends at the controls of Planet-Powered "24's." And measure the production advantages of "24's" as pushers or pull-type scraper power. Call your International Construction Equipment Distributor for a demonstration!

**International® Construction Equipment**

**International Harvester Co., 180 North Michigan Avenue**

**A COMPLETE POWER PACKAGE:** Crawler and Wheel Tractors . . . Self-Propelled Scrapers and Bottom Dump Wagons . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

**PAY-OFF STRAIGHTAWAY PUSHES**

This whopping bladeful of wet sand is dozed fast by the TD-24 operator who: 1) shifts on-the-go into first gear forward, by using the synchro-mesh transmission; and 2) utilizes instant-shift Hi-Lo planetary system of flicking levers into low-range position. As load lightens, operator power-shifts into high-range position, increasing working speed 27%! Decelerator pedal provides for "no-hands" slow-ups!

# These are the profit-proven that lead to Payhauler® fleet

**Look into the rock-lugging, grade-beating 24-ton "95"...**

- **Bonus-powered,** with a 335 hp high-torque turbo charged diesel engine to beat steep grades and high altitudes with full payloads!
- **Your choice of torque converter** with powershift, or 9-speed constant mesh transmission. Speeds to match every load and road.
- **Shock-cushioning** of planetary drive axles.
- **Massive frame stamina**—with 277 lbs. of high-strength, shock-resisting steel for each rated ton of carrying capacity.
- **Springs with extra leaves** and **extra length** to cushion the payload, smooth the ride.
- **Positive power-steering, Torqmatic braking,** panoramic vision, for unmatched operating ease and load-speeding safety.
- **Up to 25% higher hauling speeds**—the "95" can high-ball, fully loaded, up to 38 mph.
- **Faster reverse speeds**—for spotting to load, or positioning full loads for dumping. The gear-drive "95" can travel up to 7.1 mph. in reverse.
- **9-second dumping**—another cycle-speeding feature.

**...and the 250-hp, 18-ton "65" has equally outstanding features.**

## International® Construction Equipment

International Harvester Co.
180 North Michigan Ave., Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers and Bottom Dump Wagons... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

### Power for steep grade climb-outs wins steady job for five "65's"

**Bonus Turbo Charged Diesel power** to deliver extra-tonnage loads up a haul road with a 17% average grade accounts for the dependence of Caldwell Engineers on five "65" Payhaulers—on the $13 million hydro and flood-control Oliver Dam, Columbus, Ga.

### Contractor doubles load delivery speed with positive Torqmatic braking!

**Central Pennsylvania Quarry and Stripping Co.** credits *Torqmatic braking* of their 5-unit "95" Payhauler fleet with doubling load delivery speed—by increasing safe downhill hauling speeds! They've compared "95's" directly to other off-road equipment on rock-hauling duty!

# features ownership!

**Prove what it means to command** the Payhauler ratio of power to payload—for hauling up to 25% faster; beating grades and altitude. Try Payhauler "pick-up-truck" spotting ease—"zip-around" power steering—exclusive high reverse—and all the other Payhauler advantages. See your International Construction Equipment Distributor for a demonstration!

**High-percentage availability proves inbuilt stand-up-ability!**

**98.5 work availability** through one measured 12-week period is the mark set by a 10-unit "95" Payhauler fleet—high-balling rock over steep High Sierra grades, on mammoth Pool Hydro Project, for Southern California Edison Co. Such records result from reserve power, reserve frame and transmission strength, and reserve shock-resistance!

**Another thirty "95" Payhaulers join Merritt-Chapman and Scott fleet!**

**Merritt-Chapman and Scott Corporation** has added thirty more "95" Payhaulers to their Niagara Power project equipment spread. Now, the M-C and S Payhauler fleet totals 62 units—largest in the world! On St. Lawrence Seaway, huge Glen Canyon dam, and Niagara Power Project, M-C and S have proved rock-lugging, grade-beating Payhauler performance—and confirmed their satisfaction with repeat orders.

# HOW A CLAM-ACTION 4-IN-1 *obsoletes "straight bucket" rigs* ...ON JOBS LIKE THESE!

**In quarters too narrow to maneuver,** simply use the 4-In-1's clamshell action. You can load loose materials without moving the tractor with a fast, one-gulp clam-fill. Even on jobs like clean-up, you get the advantages of a big-capacity outfit; practically eliminate the need for costly hand labor. Move the "machine-selector" lever with 2-finger ease, to get clamshell, or any other 4-In-1 action! Fessenden and Co., El Curito, Calif., owns this TD-9 4-In-1!

**Back-dragging with clamshell action,** this TD-9 4-In-1 dredges silt from under a new bridge while a big boom-type clamshell is forced to stand idle in the background. The operator can also use back-drag action along with powerful Skid-Shovel excavating action to speed this job in tough digging. "The 4-In-1 is the best money-saver the county has," states Art Hahn, Colfax County, Nebraska, commissioner. "For ditch clean-up or culvert work, you can't beat it."

**Grading with back-drag motion,** this TD-9 4-In-1 is shaping a bank ahead of landscaping and paving around a new filling station. "The 4-In-1 can cut such a fine grade we don't need to follow-up with a grader," reports Ray Sims, for Meridian Pavers, Seattle, Washington. "It digs and loads faster than any comparable unit, takes out concrete slab, enables us to take on work an ordinary loader can't handle."

**Try versatile International Drott 4-In-1 clamshell action** from back-dragging to grading or excavating—to clean-up in tight quarters or for speedy stockpile loading. Then try super powerful 4-In-1 pry-over-shoe break-out action. Lift the clam lip (hydraulically) and see what big-capacity dozing you command—with 4-In-1 dozer action. Prove to yourself that 4-In-1 clamshell action obsoletes any old-fashioned "straight bucket" loader on the market. See your International Drott Distributor for a demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL HARVESTER

INTERNATIONAL DROTT

### 2-Shift, 7-Day Work Schedule Priced for . . .

# Air Force Base Alert Apron

Two 10-hour shifts, to be worked 7 days a week to meet the 6-month completion schedule, dominated the bidding for this operational alert apron at the Seymour Johnson Airforce Base in Goldboro, N. C. for the Corps of Engineers, Wilmington, N. C.

L. M. Stephenson is chief of the Construction Division.

The $1,379,872 award to Nello L. Teer Co., Durham, N. C., is 5.3% below the engineer's estimates and 18.1% below the high of four bids.

The main stem apron will be 2,000 ft long, with a taxiway 100 ft wide. Each of the eight parking stubs will be 350 ft x 100 ft.

Approximately 210,000 cu yd of unsuitable material and a like amount of backfill will have to be removed. The construction area has a heavy clay subsoil, with a high water table, requiring that the area be undercut to a depth of 6 ft during the wet winter months, and possibly during the normally dry summer months.

The contractor must exhaust approximately 128,000 cu yd of suitable on-site borrow material before borrow commences on off-site pits. At no extra cost, he must raise the level on the on-site pits to the existing natural grade in the area, with material stripped from the pits. He must also provide a 400-ft-dia ammunition burning area.

Rail and truck transportation may be utilized. The railroad is half a mile from the site.

Minimum wages include: carpenter, $1.65; tractor operator, including bulldozer, $1.60; power crane and shovel operator, $1.60; motor grader, $1.60; common laborer, $1.00.

The four bids included:

| | |
|---|---|
| 1C Nello L. Teer, Durham, N. C. | $1,379,872 |
| 2 W. H. Scott, Inc., Franklin, Va. | 1,397,320 |
| 4 Ballenger Paving Co., Inc., Greenville, S. C. | 1,685,240 |
| EE Corps of Engineers, Wilmington, N. C. | 1,457,734 |

| Bids: 10-23-58<br>Items | Unit | Quantity | Unit Prices<br>1C | <br>2 |
|---|---|---|---|---|
| Surcharge fill matl, remov & stockpile | cy | 20,000 | $0.40 | $0.32 |
| Excavation, common | cy | 21,000 | 0.40 | 0.43 |
| unsuitable material | cy | 210,000 | 0.65 | 0.73 |
| Borrow, on site | cy | 128,000 | 0.75 | 0.58 |
| off site | cy | 193,200 | 1.15 | 0.79 |
| Base crse, stab agg, 8" | sy | 14,400 | 1.29 | 1.35 |
| graded cr agg, 6" | sy | 48,400 | 0.98 | 1.30 |
| Subbase course, 6" | sy | 47,400 | 0.45 | 0.48 |
| Prime coat | gal | 22,300 | 0.17 | 0.19 |
| Tack coat | gal | 11,200 | 0.17 | 0.18 |
| Asph conc surf course | t | 6,700 | 5.35 | 5.65 |
| Bituminous material | gal | 92,100 | 0.09 | 0.14 |
| Port cmt conc pavement, 20" | sy | 47,400 | 9.49 | 10.05 |
| 6" | cy | 7 | 7.00 | 6.00 |
| Combination curb & gutter | lf | 1,180 | 2.40 | 2.12 |
| Pavement markings...paint | ls | job | 2,000 | 4,800 |
| Tie down anchors | ea | 162 | 4.50 | 8.00 |
| CRD, 6 facilities | ls | job | 9,000 | 9,000 |
| Fence, chain link | lf | 5,820 | 2.70 | 2.70 |
| Gate, double slide | ea | 1 | $500.00 | $ 1,160 |
| Taxiway lighting system | ls | job | 10,000 | 15,900 |
| Elec distribution system | ls | job | 56,500 | 33,900 |
| Water pipe, 8" | lf | 3,230 | 3.80 | 4.75 |
| 6" | lf | 5,885 | 2.95 | 3.70 |
| 2½" | lf | 5 | 4.25 | 3.45 |
| gate valve & box, 8" | ea | 1 | 175.00 | 127.00 |
| Gate valve & box, 6" | ea | 18 | 100.00 | 100.00 |
| 2½" | ea | 1 | 60.00 | 69.00 |
| Fire hydrant | ea | 14 | 200.00 | 200.00 |
| Conn to exist water main | ea | 2 | 110.00 | 265.00 |
| Encasement, pipe, 19" | lf | 380 | 4.25 | 16.00 |
| Wat line, 3", lower existing | lf | 100 | 1.65 | 5.30 |
| Sanitary SP, gravity, 8" | lf | 300 | 3.25 | 3.70 |
| 4" | lf | 45 | 2.25 | 3.20 |
| stub, gravity, 8" | lf | 5 | 4.25 | 3.20 |
| force main, 4" | lf | 2,425 | 2.35 | 3.40 |
| San sew, gate vlv & box, 4" | ea | 1 | 90.00 | 80.00 |
| manhole, standard | ea | 1 | 200.00 | 105.00 |
| security grills for existing structures | ea | 2 | 60.00 | 320.00 |
| MH w/bar screen, std | ea | 1 | 275.00 | 210.00 |
| MH, lower existing to grade | ea | 1 | 125.00 | 80.00 |
| Conn to existing sanitary sewer diversion box | ea | 1 | 60.00 | 105.00 |
| Sewage pump station, compl | ls | job | 4,200 | 6,100 |
| Seeding, permanent cover | ac | 42 | 160.00 | 200.00 |
| temporary cover | ac | 42 | 50.00 | 150.00 |
| Sprig & overseed | ac | 42 | 175.00 | 475.00 |
| Nitro, follow-up fertilizer | ac | 42 | 32.00 | 32.00 |
| Mulch | ac | 4 | 200.00 | 190.00 |
| Reinf conc or cor met storm drain pipe, 66" | lf | 185 | 65.00 | 52.30 |
| 54" | lf | 1,550 | 34.00 | 36.10 |
| 48" | lf | 585 | 26.00 | 28.75 |
| 42" | lf | 840 | 22.00 | 24.45 |
| 36" | lf | 840 | 17.50 | 18.45 |
| 30" | lf | 185 | 14.50 | 12.25 |
| 24" | lf | 535 | 13.00 | 11.10 |
| 18" | lf | 325 | 10.00 | 7.10 |
| 15" | lf | 225 | 6.00 | 6.40 |
| 12" | lf | 1,165 | 5.75 | 5.75 |
| 48" w/flex watertight joints | lf | 120 | 37.50 | 37.10 |
| Reinf conc, drain structs | cy | 75 | 100.00 | 160.00 |
| Conc, plug encasement & headwall #32 | cy | 22 | 75.00 | 100.00 |
| Pave, conc ditch & headw, 6" | sy | 250 | 7.00 | 16.00 |
| CI frames & grates, 2'x2' | ea | 41 | 35.00 | 70.00 |
| manhole frames & covers | ea | 4 | 50.00 | 42.50 |
| Security grills for 66" storm drain pipe, sloping headwall | ea | 2 | 175.00 | 750.00 |
| headwall #32 | ea | 1 | 165.00 | 415.00 |
| 54" pipe, sloping headwall | ea | 1 | 145.00 | 405.00 |
| 24" pipe, sloping headwall | ea | 1 | 85.00 | 370.00 |
| Excavation, ditch | cy | 8,000 | 0.65 | 1.06 |
| RC culv pipe, 48"...remov | lf | 30 | 8.00 | 6.35 |
| 18"...remov | lf | 30 | 4.00 | 4.25 |
| 15"...remov | lf | 35 | 4.00 | 3.70 |
| 12"...remov | lf | 60 | 4.00 | 3.20 |
| Sheathing & bracing, left in | bf | 2,000 | 0.20 | 0.16 |

Start: 11-20-58 Complete 5-30-59

## Earthfill Dams to Retard Oklahoma Floodwaters

To control floodwaters in Wewoka Creek Water and Soil Conservancy District #2, the Soil Conservation Service awarded two contracts totaling $47,941. John Geter, Wewoka, is the engineer.

The award to Baker Construction Co., Lindsay, Okla., is 4.5% below the engineer's estimate. It includes two upstream floodwater retarding embankments on Big Wewoka Creek in Seminole County. The first of these, 1,400 ft long and 22 ft high, will require 60,100 cu yd of earthfill embankment. The second, 800 ft long and 23 ft high, will require 48,350 cu yd. The contract price on placing and rolling embank-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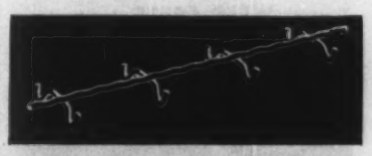

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**GRANVILLE ST. BRIDGE, VANCOUVER, BRITISH COLUMBIA**—One of the largest 8 lane bridges in North America. Here Weld-Crete was applied to bridge surface to bond cement dividing strips. Now, over 4 years later, bonds are as good as new. *General Contractor:* Dominion Bridge Company.

**SEVEN CORNERS SHOPPING CENTER, FALLS CHURCH, VIRGINIA**—During construction of this 600,000 sq. ft. structure, initially only part of floor was poured and floated to a smooth finish. Areas in which show windows would be added were poured as base slab only. Slab was coated with Weld-Crete. After store fronts were custom-built, delayed toppings of 1" to 1½" thick were poured with assurance of permanent bond to base slab. These toppings were then finished with asphalt tile, wood, or finish flooring of lessee's choice. Designed and constructed by The Kass Realty Co. of the Kass-Berger Organization under direction of J. Franklin Groff. *Concrete Contractor:* Moses-Ekco.


## . . . Oklahoma to retard floodwaters

ment was 23¢ a cu yd compared with the high bid on this item, 25¢.

Contract prices for excavation ranged from $0.12 per cu yd in emergency spillway, to $1.00 per cu yd of wet cutoff trench and channel excavation.

Class A concrete must acquire a compressive strength of 2,000 psi in 7 days, 3,000 psi in 28 days. Class B must acquire a compressive strength of 1,300 psi in 7 days, and 2,000 psi in 28 days.

The contractor furnishes all materials.

Wages on the job include: tractor operators, $2.05; common laborers, $1.00.

| | Site #8 | Site #12 |
|---|---|---|
| 1C Baker Constr. Co., Lindsay, Okla. | $25,231 | $22,710 |
| 2 H.S.&B. Contractors, Wewoka | 26,766 | 24,790 |
| 3 B & M Pipeline & Dozer Service, Okemah, Okla. | 31,916 | 29,732 |
| EE Soil Conservancy Service, Wewoka | 24,832 | 25,684 |

| Bids: 9-24-58 Items | Unit | Quantity Site #8 | Quantity Site #12 | Unit Prices 1C | Unit Prices 2 |
|---|---|---|---|---|---|
| Timber.....clear | ac | 16 | 9.2 | $150.00 | $175.00 |
| Excavation, common | | | | | |
| cutoff trench, dry | cy | 5,591 | ..... | 0.18 | 0.25 |
| dry | cy | ..... | 8,180 | 0.15 | 0.25 |
| wet | cy | 1,029 | ..... | 0.90 | 1.00 |
| wet | cy | ..... | 600 | 1.00 | 1.00 |
| emer spillway, dry | cy | 5,570 | 4,580 | 0.12 | 0.20 |
| stream chann, dry | cy | 470 | ..... | 0.20 | 0.30 |
| wet | cy | ..... | 370 | 1.00 | 1.00 |
| drain channel, dry | cy | 650 | 770 | 0.20 | 0.25 |
| Embankment...p&r | cy | 60,100 | 48,350 | 0.23 | 0.23 |
| Topsoil, emer spillway...s&p | sy | 4,830 | 5,600 | 0.10 | 0.10 |
| Concrete, Class A | cy | 12.03 | 13.98 | 70.00 | 75.00 |
| class B | cy | 19.13 | 22.22 | 65.00 | 50.00 |
| Reinforcing steel | lb | 1,202 | 1,385.78 | 0.16 | 0.18 |
| RCP, 17" ID...f&i | lf | 168 | 192 | 9.00 | 10.00 |
| Sluice gate 18" & cutoff mech...f&i | ea | 1 | 1 | 250.00 | 190.00 |
| Anti vortex baffle.....f&i | ea | 1 | 1 | 250.00 | 375.00 |
| Wire fence, new, & 2 gates.....f&i | lf | 4,273 | 2,926 | 0.33 | 0.35 |
| Gravel filter blanket.....f&p | cy | ..... | 365 | 2.50 | 4.00 |

f&i furnish and instal — f&p furnish and place
s&p salvage and place — p&r place and roll

Completion schedule: 127 working days
Liquidated damages: $80/day

# Clearing and Grubbing Wins

## $405,000 New Mexico contract is for 1.6 miles of grading, drainage and paving in Carlsbad

With the three low bidders running neck and neck on most items, a lump sum bid of $20,000 for clearing and grubbing was $40,000 under the amount bid by the second low for this road job. It took the contract for J. W. Jones Construction Co., Albuquerque, N. Mex.

The $404,969 low bid award by the New Mexico State Highway Department averages $256,147 a mile, almost 9% under the second low and 12.7% below the engineer's estimate. Mann Engineering Co., Roswell, N. Mex. is the consultant.

The work, on 4-lane U.S. Hwy. 285, includes 1,581 mi of grading, drainage, base course, concrete pavement, plant mix, curbs and gutters, street light bases and electrical conduits.

The largest item in the contract, 38% of the total, is for 28,085 sq yd of portland cement concrete pavement. The unit price bid on this item by all but the high bidder was $5.50 a sq yd, the same as the engineer's estimate. High bid on this item was $6.35 a sq yd.

The same three contractors, as well as the engineer, priced 30,614 cu yd of unclassified excavation at $1.00 a cu yd. Low bid on this item was 65¢ a cu yd.

Portland cement concrete pavement must contain not less than 6 sacks of cement per cu yd and must attain a minimum compressive strength of 3,000 psi in 28 days.

The contractor furnishes all materials. Rail and truck transportation are both available. The railroad is three city blocks from the project.

Minimum wages include: carpenter $2.75; concrete finisher, $2.95; cement finisher tender $2.05; form setter $2.05; bulldozer operator $2.65; concrete paving spreader operator $2.85; self-propelled pneumatic roller operator $2.05; steel wheel roller operator $2.65; electrician $3.325; common laborer $1.75.

The four bids included:

| | |
|---|---|
| 1C J. W. Jones Constr. Co., Albuquerque, N.M. | $404,969 |
| 2 J. H. Ryan & Son, Inc., Albuquerque, N.M. | 443,480 |
| 4 Armstrong & Armstrong, Roswell, N.M. | 461,622 |
| EE Mann Engineering Co., Roswell, N.M. | 463,861 |

| Bids: 10-17-58 Items | Unit | Quantity | Unit Prices 1C | Unit Prices 2 |
|---|---|---|---|---|
| Structures.....remov | ls | job | $3,000 | $1,040 |
| Clear & grub | ls | job | 20,000 | 60,000 |
| Excavation, uncl | cy | 30,614 | 1.00 | 1.00 |
| structures | cy | 54 | 3.00 | 4.00 |
| Watering | Mgal | 1,115 | 0.50 | 0.50 |
| Rolling, tamp roller | hr | 30 | 12.00 | 10.00 |
| pneumatic tired | hr | 143 | 6.00 | 6.00 |
| steel tired | hr | 154 | 8.00 | 10.00 |
| Roller operation, 50 ton | hr | 86 | 15.00 | 20.00 |
| Mechanical tamping | hr | 51 | 5.00 | 6.00 |
| Markers, right of way | ea | 30 | 8.00 | 10.00 |
| std Fed aid proj, tp III | ea | 3 | 50.00 | 100.00 |
| Subbase, control gradation | t | 5,750 | 1.35 | 1.35 |
| Base course | t | 14,160 | 1.35 | 1.45 |
| Portland cement, tp I | bbl | 1,340 | 5.00 | 7.00 |
| Cement treated base, cl B | sy | 27,111 | 0.20 | 0.30 |
| Bit curing seal matl, C-2 | bbl | 188 | 8.00 | 8.00 |
| Emulsified asphalt, AE-3 | bbl | 100 | 9.00 | 10.00 |
| Surface course, plant mix | t | 4,750 | 3.50 | 5.00 |
| Bit mat, tp 85-100, plant mix | bbl | 1,485 | 7.00 | 6.75 |
| Conc, cl A | cy | 55 | 100.00 | 100.00 |
| median, solid slot | cy | 1,032 | 32.00 | 30.00 |
| median cover | sy | 785 | 4.50 | 3.25 |
| Reinforcemt, conc structs | lb | 1,552 | 0.20 | 0.20 |
| Portland cmt conc pavemt | sy | 28,085 | 5.50 | 5.50 |
| Conc curb & gutter | lf | 14,580 | 1.75 | 1.90 |
| median curb & gutter | lf | 961 | 1.35 | 1.50 |
| high early str, val gut | lf | 289 | 2.00 | 2.20 |
| curb return fillets | sy | 214 | 5.50 | 4.00 |
| sidewalks | sy | 5,178 | 4.00 | 3.50 |
| driveways | sy | 1,957 | 6.00 | 5.00 |
| Bit ctd asb bond carr mat | | | | |
| syphon pipe, 24" | lf | 104 | 12.50 | 12.00 |
| Structural steel | lb | 2,411 | 0.50 | 1.00 |
| Conduits, 2", galv iron | lf | 1,480 | 1.50 | 1.00 |
| fiber | lf | 3,956 | 1.25 | 0.30 |
| RR insul #4 cable, std type | lf | 21,154 | 0.20 | 0.17 |
| Galv iron 90° ells, 2"ø, 9½" radius | ea | 6 | 5.00 | 5.00 |

Completion schedule: 225 working days
Liquidated damages: $100/day

(*Unit Prices continued page 90*)

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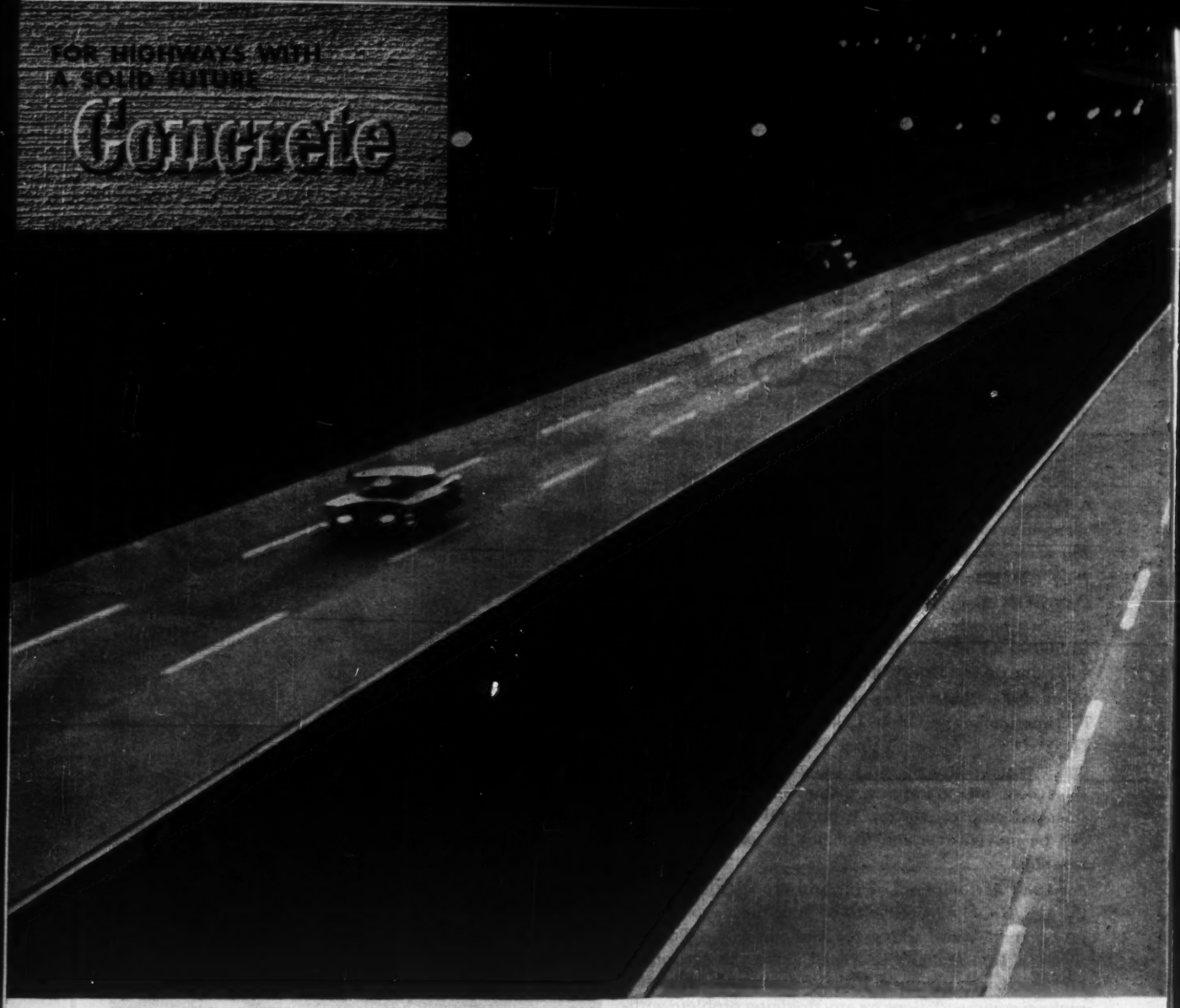

# On the Connecticut Turnpike, they paved ... got better night

**The world's longest lighted highway shows another big advantage you get with concrete.**

The extra high night-visibility level all along the heavy-duty, lighted section of the Connecticut Turnpike comes from the very nature of concrete. Where dark-colored pavements absorb light, concrete reflects it.

American Standards Association recommendations for standard lighting practice show *lights are twice as effective on high reflectance surfaces, like concrete,* as on dark surfaces. This means you get double the light. Or you can use up to 50% fewer fixtures, still get recommended lighting levels. More important, you cut the electric bill—up to $720 per mile per year.

And lighting is just one example of how modern concrete saves money. Initial cost is moderate—often lower than for other pavements when costs are based on load-carrying capacity. Maintenance cost will run as much as 60% lower than for asphalt. You get a 50-year-plus service life without surface treatments or repaving. Little wonder that concrete is the preferred pavement for heavy-duty roads like those on the new Interstate System.

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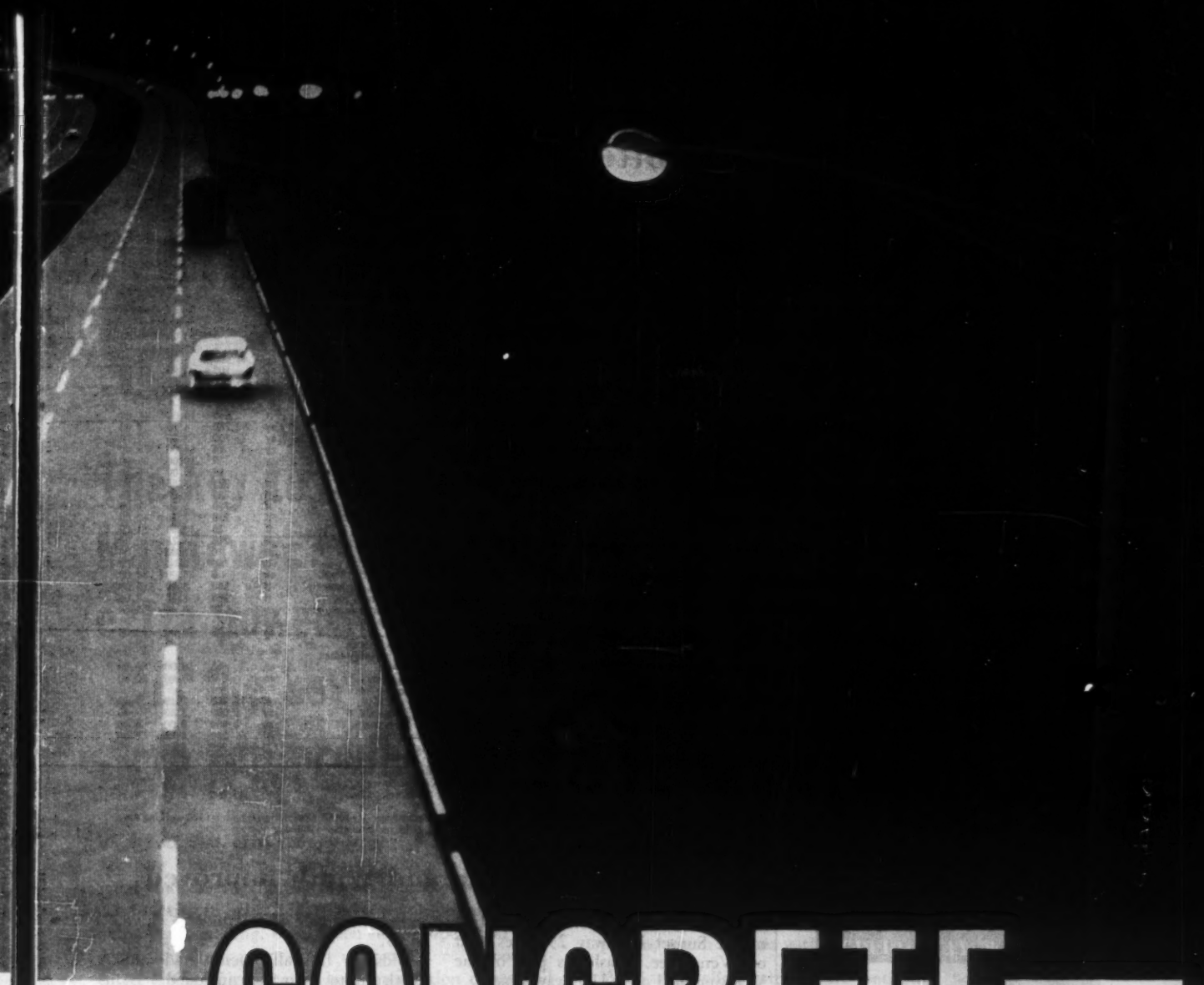
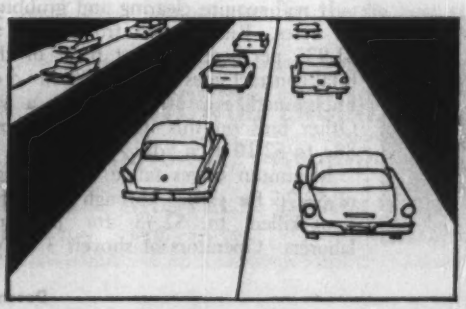


# with CONCRETE visibility at no extra cost!

*Traffic pattern that often develops with low light level*



*Improved traffic pattern on highway with high light level*

**Better highway visibility improves night traffic patterns.** Connecticut Turnpike experience shows that drivers pass freely, don't crowd center lines, don't string out. The traffic capacity of the highway is increased.

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### Traffic and Access Problems Complicate

# Charlotte Pavement Widening

Portland cement concrete pavement, at $4.85 a sq yd, accounts for more than half of this $474,869 contract for widening 1.93 mile of roadway in Charlotte, N. Car. to U.S. 29 Bypass.

The award to Blythe Bros. Co., Charlotte, by the North Carolina State Highway and Public Works Commission, Raleigh, is 3.8% below the second and 14% below the high of the six bids. It averages $246,050 a mile. L. A. Brown, Charlotte, is engineer.

The existing pavement will be widened 26 ft on either side. The work includes grading, drainage, placing a 9-in. portland cement concrete pavement on a 4-in. stabilized aggregate base course, and curbs and gutters.

Gaps in the pavement in front of 18 commercial establishments will create problems in the handling of the 7,500 average daily tonnage of traffic which must be accommodated during construction.

Minimum modulus of rupture for concrete is 550 psi at 14 days.

The contractor must furnish all materials except borrow excavation.

Prevailing wages include: carpenters $1.75-$2.00; shovel and crane operators $2.00-$2.25; concrete finishers $1.50-$1.75; tractor operators $1.75-$2.00; common laborers, $1.00-$1.25.

The six bids on this pavement widening included:

| | |
|---|---|
| 1C Blythe Bros. Co., Charlotte, N. C. | $474,869 |
| 2 Southern Roadbuilders, Inc., Augusta, Ga. | 493,443 |
| 6 Clinchfield Conc. Co., Inc., Kingsport, Tenn. | 552,288 |

| Bids: 10-21-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Clear | ac | 3 | $250.00 | $250.00 |
| Grub | ac | 1 | 125.00 | 250.00 |
| Exc, uncl | cy | 46,000 | 0.52 | 0.91 |
| drainage ditch | cy | 100 | 0.90 | 1.50 |
| Stab agg base course, 4" | sy | 84,500 | 0.65 | 0.86 |
| | t | 200 | 6.00 | 2.60 |
| Bit conc surf crse, type F-2, dr. pkg. lot, medians | t | 850 | 10.00 | 16.00 |
| P cmt conc pave, 9" | sy | 86,700 | 4.85 | 4.68 |
| Isl covers, 9" | sy | 700 | 3.50 | 2.70 |
| Conc, cl C, endwalls | cy | 14 | 85.00 | 75.00 |
| steps | cy | 2 | 110.00 | 90.00 |
| Brick masonry retain walls | cy | 10 | 50.00 | 65.00 |
| Reinf conc pipe, 15" | lf | 4,224 | 3.25 | 3.80 |
| 18" | lf | 1,362 | 4.00 | 4.80 |
| 24" | lf | 738 | 5.70 | 7.00 |
| 30" | lf | 216 | 7.75 | 12.00 |
| 36" | lf | 36 | 10.50 | 14.00 |
| 42" | lf | 216 | 13.75 | 18.00 |
| 48" | lf | 18 | 17.00 | 22.00 |
| Bit ctd CMP culv, type B 18" | lf | 180 | 5.00 | 5.00 |
| elbows, tp B, 18" x30° | ea | 8 | 35.00 | 30.00 |
| CIP culverts, 4", smooth | lf | 500 | 3.50 | 3.00 |
| VCP culverts, 4" | lf | 500 | 1.50 | 3.00 |
| Brick masonry catch basins | cy | 78 | 60.00 | 65.00 |
| Conc drop inlets & junct boxes | cy | 13 | 75.00 | 90.00 |
| Grates & frames, brick masonry catch basins | ea | 58 | 50.00 | 60.00 |
| drop inlets | ea | 7 | 50.00 | 60.00 |
| Conc comb curb & gutter, 2'6" | lf | 17,980 | 2.10 | 2.32 |
| sidewalk, 4" | sy | 2,000 | 3.50 | 3.20 |
| driveways, 8" | sy | 3,000 | 6.00 | 5.60 |
| Galv stl pipe, ¾" | lf | 200 | 1.25 | 1.00 |
| 1" | lf | 200 | 1.50 | 1.20 |
| 2" | lf | 200 | 2.00 | 2.00 |
| Conc curb, 8"x8" | lf | 4,510 | 0.60 | 0.90 |
| cl A culverts | cy | 97.6 | 115.00 | 67.00 |
| Reinforcing steel | lb | 15,880 | 0.14 | 0.14 |

Commence: 11-14-58. Completion schedule: 180 working days
Liquidated damages: $200/day

# Forest Highway Grade and Width Improved

This 2.889 mile, 34.5 wide section of the Sunset Highway 25 miles west of Wenatchee, Wash., is part of the Washington Forest Highway project.

The sixteen bidders ranged from a low of $591,848 to a high of $1,147,362. The award to low bidder Goodfellow Bros., Inc., Wenatchee, Wash., averages $204,862 per mile, and is 15.4% below the engineer's estimate and 2.7% below the second bid.

Work is for the Bureau of Public Roads, Department of Commerce, Portland, Ore. L. F. Brown, Leavenworth, Wash., is the engineer.

It will require clearing and grubbing 46 acres. Bids ranged from $500 to $1,935 per acre. Almost 65% of the total contract goes for 446,000 cu yd of unclassified excavation at 86¢ a yd. Other bids on this item ranged from 88¢ to $2.10 a cu yd.

Minimum wages range from a high of $3.76 for skilled through $2.68 for semi-skilled to $2.48 for common laborers. Operators of shovels 3 cu yd and over are paid $3.99, under 3 cu yd, $3.63.

Bids on this alignment, grade and width improvement job included:

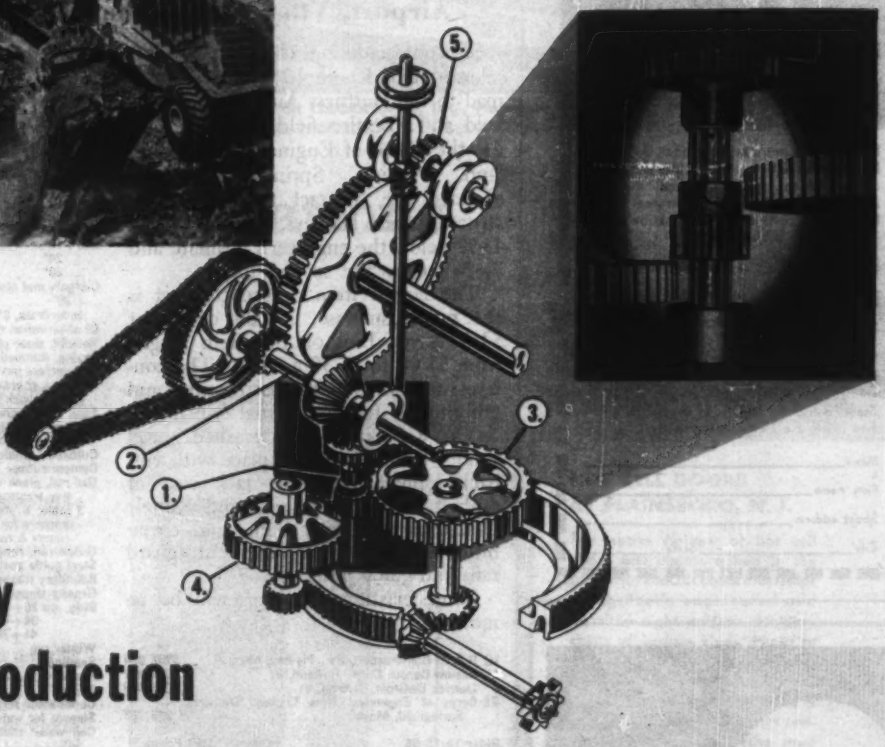
| | |
|---|---|
| 1C Goodfellow Bros., Inc., Wenatchee, Wash. | $591,848 |
| 2 Andersen Steen, Seattle, Wash. | 608,000 |
| 18 Morrison-Kundsen Co., Inc., Seattle, Wash. | 1,147,362 |
| EE L. F. Brown, Leavenworth, Wash. | 699,302 |

| Bids: 11-5-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Extra & misc work | ls | job | $1,000 | $1,000 |
| Clear & grub | ac | 46 | 550.00 | 500.00 |
| Trees & snags, sel...remov | sf | 200 | 7.00 | 7.00 |
| Exc, uncl | cy | 446,000 | 0.86 | 0.93 |
| structural | cy | 300 | 5.00 | 5.00 |
| arch culverts | cy | 1,700 | 6.00 | 3.00 |
| Foundation fill | cy | 100 | 8.00 | 5.00 |
| Overhaul | sta yd | 845,000 | 0.01 | 0.01 |
| | yd mi | 39,000 | 0.30 | 0.30 |
| Conc, cl A | cy | 254 | 60.00 | 75.00 |
| cl X | cy | 540 | 50.00 | 65.00 |
| arch culvert, 8' bbl | lf | 320 | 92.00 | 80.00 |
| 10' bbl | lf | 208 | 114.20 | 100.00 |
| 11' bbl | lf | 100 | 122.75 | 110.00 |
| Reinforcing steel | lb | 29,000 | 0.15 | 0.20 |
| Treated timber irrigation trestle | ls | job | 600.00 | 3,000 |
| Bit ctd cor met pipe, 15" | lf | 1,030 | 5.50 | 5.00 |
| 24" | lf | 104 | 9.00 | 10.00 |
| 36" | lf | 68 | 10.00 | 15.00 |
| Galv cor MP, irrigat, 18" | lf | 320 | 10.00 | 8.00 |
| Isolated boulders | cy | 400 | 4.00 | 7.00 |
| CMP underdr, 8" perf | lf | 100 | 3.00 | 3.50 |

Commence: 11-17-58. Completion schedule: 330 cal days

(Unit Prices continued on p. 92)

This Manitowoc Model 3000 shovel equipped with a 2½-yd. dipper loads out 2000 yards of hard sandstone per day on a Midwest road job. One of the most important factors contributing to the unit's output record is the Manitowoc "Power-flo" drive described below.




# The key to Manitowoc's extra power is the key to top production

. . . and that extra power is provided through the *exclusive* Manitowoc "Power-flo" slide pinion arrangement that directs the full flow of engine power *only* to the function in operation. There are no power-robbing extra gears moving, even when not in operation (and gears that don't move don't wear out) . . . no complicated trains of gears that hold production down and keep maintenance costs up.

What arrangement could be simpler? As shown in the photograph above, the slide pinion itself is a single, sturdy shaft, spline-fitted with the necessary gears to engage, or disengage the desired function. The slide pinion (No. 1 on the drawing) is driven directly from the drive shaft (2) using only one set of clutches to drive the travel, swing and boom hoist.

**With the slide pinion up,** the power flows directly from the reversing clutches to the travel gear (3) through the center pin and to the horizontal shaft in the carbody.

**With the slide pinion down,** the power flows directly to the swing shaft (4) containing the final drive pinion, which meshes with the carbody ring gear.

**With the slide pinion in neutral,** the reversing clutch is left free to operate the boom hoist (5) if an optional independent boom hoist is not used.

The result is *direct* power to every function . . . a feature found in *Manitowoc* cranes, draglines and shovels. The faster cycle, heavier lifts and bigger bites found in Manitowocs are the direct result of this simple and effective "Power-flo" design. That's why output is *measurably* higher with Manitowoc . . . that's why it will pay you to see your Manitowoc dealer for complete information on the rig best suited to your operation.

Manitowoc

**MANITOWOC ENGINEERING CORP.**
(A subsidiary of The Manitowoc Company, Inc.)
MANITOWOC, WISCONSIN

| CRANES | SHOVELS | DRAGLINES | TRENCH HOES |
|---|---|---|---|
| 20 TON - 100 TON | ½-YD. - 5½-YD. | ½-YD. - 6-YD. | ½-YD. - 2½-YD. |

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# Airport Gets Access Road

## Relocation of Route 106 and access road to Hartness Airport, Vt., to use asphalt and bituminous

Six contractors bid for this $208,000 relocation of Route 106 and an access road to the Hartness Airport in Springfield and Weathersfield, Vt. On Oct. 24, the Corps of Engineers, New England Division, Springfield, Mass., awarded the contract to B&M Construction Inc., Hadley, Mass., on a bid 11% below the engineer's estimate and 7.6% below the second bid.

The largest item in the contract is the gravel subbase, 29,600 cu yd at $1.00 a yd. Bids on this item ranged from $1.00 to $1.30 a cu yd. The contract price of $20,000 for clearing and grubbing is for approximately 9 acres.

The work includes a crushed gravel surface course mixed in place with cutback asphalt, a double tack coat of asphalt with peastone seal, and a single tack coat of asphalt with sand cover; bituminous concrete pavement; guard rails and guide posts.

Some existing structures will be removed.

| | |
|---|---|
| 1C B & M Construction, Inc., Hadley, Mass. | $207,904 |
| 2 Basiow Constr. Corp., Rutland, Vt. | 224,991 |
| 3 Derrick DeGroot, Jericho, Vt. | 255,038 |
| EE Corps of Engineers, New England Division, Springfield, Mass. | 233,703 |

| Bids: 10-15-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Clear & grub | ls | job | $20,000 | $9,000 |
| Excavation, unclassified | cy | 44,700 | 0.50 | 0.55 |
| solid rock | cy | 1,200 | 3.00 | 2.95 |
| Borrow | cy | 22,600 | 0.60 | 0.45 |
| Exc, trench, unci, 0-6' | cy | 3,300 | 2.00 | 2.00 |
| over 6' | cy | 100 | 5.00 | 3.00 |
| rock, 0-6' | cy | 150 | 8.00 | 6.00 |
| over 6' | cy | 10 | 20.00 | 12.00 |
| structural | cy | 400 | 2.00 | 4.00 |
| channel, unci | cy | 800 | 1.50 | 1.50 |
| muck | cy | 1,440 | 1.50 | 1.00 |
| Bids: 10-15-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
| Subgrade, fine grading | sy | 61,550 | $0.10 | $0.05 |
| Subbase, gravel | cy | 29,600 | 1.00 | 1.00 |
| Base course, macadam | cy | 120 | 6.00 | 7.50 |
| Gravel backfill | cy | 240 | 2.00 | 2.50 |
| shoulders | cy | 430 | 3.00 | 4.00 |
| pits, strip | cy | 4,440 | 0.20 | 0.20 |
| Dust control | Mgal | 120 | 6.50 | 4.00 |
| Concrete, cl B | cy | 255 | 45.00 | 72.20 |
| Portland cement | bbl | 415 | 6.50 | 4.80 |
| Reinforcing steel | lb | 30,900 | 0.15 | 0.22 |
| RCP, 18" | lf | 1,100 | 5.00 | 5.10 |
| 24" | lf | 492 | 6.50 | 7.30 |
| 60" | lf | 80 | 30.00 | 36.50 |
| Corrugd met pipe, asph ctd, 36" | lf | 108 | 16.50 | 17.00 |
| underdrain, 8" perf | lf | 3,394 | 3.00 | 2.50 |
| CI observation riser | ea | 7 | 50.00 | 50.00 |
| Rockfill, slope protection | cy | 800 | 3.00 | 2.50 |
| Paving, dumped rock | cy | 30 | 8.00 | 25.00 |
| Bit concrete pavement | t | 150 | 15.00 | 11.00 |
| Surf crse, cr gravel mixed in pl w/cutback asphalt | t | 4,980 | 2.50 | 4.50 |
| Tack coat, cutback asphalt, dbl w/pea stone seal | gal | 5,300 | 0.17 | 0.50 |
| single w/sand cover | gal | 15,900 | 0.17 | 0.45 |
| Cutback asphalt | gal | 39,300 | 0.17 | 0.36 |
| Cement rubber masonry | cy | 150 | 40.00 | 48.00 |
| Grd rail, plank w/preservative treatment | lf | 360 | 3.00 | 3.05 |
| 3 cable, w/steel posts | lf | 4,738 | 2.25 | 1.95 |
| anchors for | ea | 38 | 60.00 | 50.00 |
| remov & reset | lf | 180 | 2.00 | 2.05 |
| Guard rail, remove present | lf | 220 | 1.00 | 0.30 |
| Steel guide posts | ea | 56 | $8.00 | $11.50 |
| Boundary markers | ea | 48 | 35.00 | 16.00 |
| Granite sloped edging | lf | 300 | 2.10 | 3.00 |
| Bldg, sta 35+30 d&r | ls | job | 10.00 | 60.00 |
| 39+90 d&r | ls | job | 10.00 | 50.00 |
| 41+70 d&r | ls | job | 10.00 | 50.00 |
| Winter rye | lb | 300 | 0.10 | 1.00 |
| Seeding | lb | 410 | 1.00 | 1.20 |
| Mulch | t | 22 | 80.00 | 60.00 |
| Topsoil | cy | 220 | 3.00 | 3.00 |
| Commercial fertilizer | lb | 3,500 | 0.06 | 0.25 |
| Sleeves for water pipes | lf | 50 | 3.00 | 4.60 |
| Cap water tube, seamless, ¾" | lf | 80 | 3.00 | 2.00 |
| Steel drop inlet grates | ea | 1 | 100.00 | 35.00 |
| Marker, town line, sta 33+30, remove & reset | ls | job | 25.00 | 50.00 |
| Superstructs, remove present | ls | job | 100.00 | 100.00 |

d&r—demolish & remove

Awarded: 10-24-58

Completion schedule: 360 cal days

# Sewage Project Bid 5% Below Estimate

Three contracts for a 1.5 mgd primary sewage treatment plant and emergency overflow sewer for the Easthampton, Mass., Board of Public Works, total $294,598, 5% below the engineer's estimate, and 2.3% below the second bid.

The six bids on this project break down like this:

| | Amount | % of Total |
|---|---|---|
| General Contract: | | |
| Halloran Constr. Co., Providence R. I. | $240,243 | 81.6 |
| Subcontracts: | | |
| Electrical Work | | |
| Richard A Turner, Co. Inc., Springfield, Mass. | 6,775 | 2.3 |
| Piping Work | | |
| Holyoke Valve & Hydrant Co., Holyoke, Mass. | 47,580 | 16.2 |
| Total | $294,598 | 100.0 |

Tighe & Bond, Holyoke, Mass., is the consultant.

The treatment plant includes two primary clarifiers, 99½ ft long and 14 ft wide, with an average water depth of 7½ ft; and two digesters, 35 ft dia and 20 ft high.

All concrete must attain a compressive strength of 3,000 psi in 28 days.

The contractor furnishes all materials. The railroad is adjacent to the site.

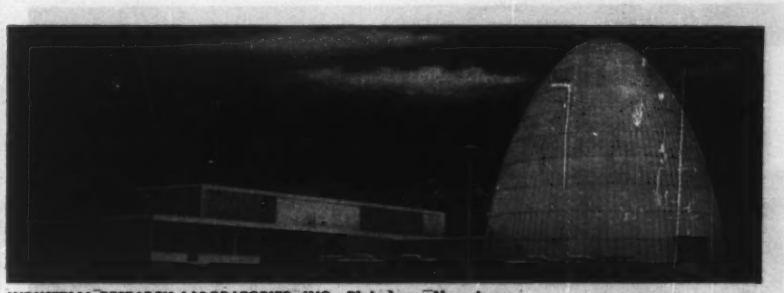
Minimum wages include: power shovel, crane and trenching machine operators $3.50; bulldozer and tractor operators, $3.04; pipelayers $2.27; common laborers $2.27, all including fringe benefits; electricians $3.30.

The six bids, all of which included subcontracts for the electrical and piping systems, shaped up like this:

(Continued on 94)

# PEELLE DOORS

## for Nuclear Applications



INDUSTRIAL RESEARCH LABORATORIES, INC., Plainsboro, New Jersey
ARCHITECTS: SKIDMORE, OWINGS & MERRILL • GENERAL CONTRACTORS: TURNER CONSTRUCTION CO.

### WHAT IT TAKES TO SUPPLY DOORS FOR NUCLEAR STRUCTURES

The engineering and functional aspects of doors used in hot cells, reactors, irradiation chambers and other nuclear structures pose many unusual problems that most door fabricators have never had to face.

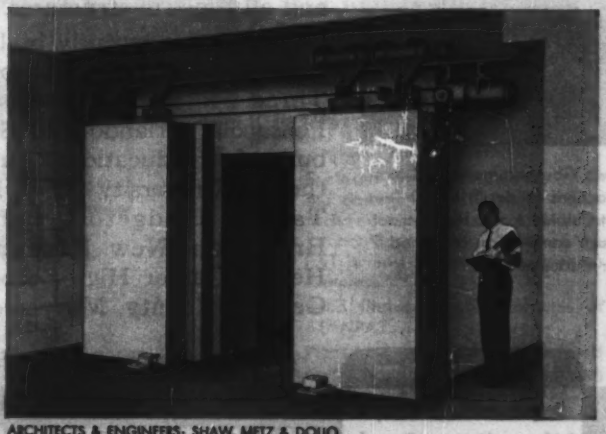
Materials of great weight and density are used in nuclear shielding doors. Such doors may be made of lead, steel, concrete—sometimes heavy aggregate concrete—and often of a combination of these and other materials.

A great wealth of design and engineering experience, gained in furnishing doors for X-ray rooms, high frequency sound laboratories, jet engine test cells and for some of the most prominent nuclear laboratories in the world places The Peelle Company in a strong position to engineer, fabricate and install the various types of doors required for nuclear facilities.

***Write for color brochure containing photos and descriptions of an interesting variety of Peelle nuclear door installations.***

**HOT CELL DOORS AT PLAINSBORO, N. J.**

The above battery of hot cell doors was photographed in the Industrial Reactor Laboratories for which Peelle engineered and installed eight nuclear shielding doors of various kinds. Photo at left shows one of these doors partially opened. Each of these doors weighs 26 tons and consists of a 3' thick steel shell filled with concrete and hung on massive steel hinges of superior design. A transfer hole in each door permits placing small objects in the cell while the door is closed.



ARCHITECTS & ENGINEERS: SHAW, METZ & DOLIO
CONSULTANTS: GENERAL NUCLEAR ENGINEERS, INC.

**HOT LAB DOOR IN CARACAS, VENEZUELA**

This Peelle center parting, horizontal sliding door in the I.V.I.C. Reactor Building is motorized. To provide extra hall space, the door panels were constructed of machined solid steel slabs, measuring 16" in thickness and weighing 15 tons. The opening frame consists of heavy steel slabs to provide proper shielding and interlocking.

ENGINEERED FOR THE BUILDING INDUSTRY
PEELLE-RICHMOND PRODUCTS

**THE PEELLE COMPANY**
47 Stewart Avenue, BROOKLYN 37, N.Y.
4037 N. Kedzie Ave., CHICAGO 18, ILL.
34 South 17th St., PHILADELPHIA 3, PA.
OFFICES IN PRINCIPAL CITIES

Architects: Sargent, Webster, Crenshaw & Folley, Syracuse, N.Y.
Foundation Consultant: B. K. Hough, Ithaca, N.Y.

# Vibroflotation®

## saved $53,000 over the use of piling for school foundation in New York State

Two Vibroflots made 704 compactions to depth of 20 feet at Colonie Junior High School. Each compaction consumed 7 or 8 tons of sand.

For Colonie Junior High School, Colonie, N.Y., 30-ton piles, 60 feet long would have cost $105,000. The total cost of Vibroflotation, plus stripping, was $52,000 to compact the soil to specified depth of 20 feet below footing grades. The complete operation took 22 working days.

Vibroflotation is one way to get more out of construction dollars for school and all types of structures.

Other schools recently built on sand compacted by Vibroflotation include: Three Florida Catholic schools in Pensacola, Orlando and St. Petersburg; four educational buildings at the new University of South Florida, Tampa; Bridgeton High School, Bridgeton, New Jersey; Marlow Heights Junior High School, Prince George's County, Maryland.

*Write for Booklet E-18*

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Pittsburgh 22, Pa.
ATlantic 1-2500


## . . . Sewage Project

| | | |
|---|---|---|
| 1C | Halloran Constr. Co., Providence, R. I. | $294,598 |
| 2 | R. H. White Constr. Co., Auburn, Mass. | 301,208 |
| 3 | R. Zoppo, Inc., Norwood, Mass. | 377,135 |
| EE | Tighe & Bond, Holyoke, Mass. | 310,215 |

| Bids: 10-1-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Excavation, trench | cy | 2,000 | $1.50 | $1.00 |
| earth stripping | cy | 2,000 | 0.50 | 0.70 |
| open earth | cy | 5,000 | 1.00 | 1.30 |
| ledge | cy | 100 | 10.00 | 1.00 |
| Borrow, ordinary | cy | 5,000 | 0.50 | 1.30 |
| gravel | cy | 800 | 2.25 | 2.20 |
| Broken stone | cy | 800 | 2.50 | 4.75 |
| Loam, furnish | cy | 100 | 5.00 | 5.00 |
| Loaming, fine grading | sy | 8,000 | 0.70 | 0.16 |
| Concrete, structural | cy | 950 | 62.00 | 69.50 |
| Steel reinforcement | lb | 124,000 | 0.14 | 0.155 |
| MH or CB, brick, 5' or less | ea | 7 | 260.00 | 250.00 |
| vertical ft. | vf | 24 | 30.00 | 30.00 |
| Vitrified clay pipe, 6" | lf | 300 | 2.00 | 3.50 |
| 8" | lf | 250 | 2.50 | 3.60 |
| 15" | lf | 100 | 5.00 | 8.00 |
| 21" | lf | 220 | 10.00 | 12.00 |
| Cmt conc sewer pipe, 21" | lf | 700 | 10.00 | 6.15 |
| Pipe, class 150, 4" | lf | 700 | 3.00 | 3.10 |
| Tile underdrains | ls | job | 3,000 | 3,160 |
| Filter sand | cy | 550 | 2.50 | 4.00 |
| Riprap | t | 20 | 30.00 | 10.00 |
| Woven wire fence | lf | 1,530 | 3.50 | 3.20 |
| Bituminous material | gal | 2,900 | 0.60 | 0.39 |
| Concrete walk | sy | 120 | 4.40 | 5.00 |
| Control bldg. | ls | job | 78,000 | 60,402 |
| Gas holder | ls | job | 16,000 | 12,326 |
| Storage garage | ls | job | 14,000 | 18,409 |
| Chlorination equipment | ls | job | 7,000 | 6,928 |
| **Subcontracts** | | | | |
| Electrical system | ls | job | 6,775 | 6,775 |
| Piping system, complete | ls | job | 47,580 | 61,198 |

Completion schedule: 365 calendar days

## North Gila, Ariz. Drain is Extended 3,000 ft.

This $13,841 contract to Vinson Construction Co., Phoenix, Ariz., by the Bureau of Reclamation, Yuma, Ariz., is for the construction of an open drain extension, approximately 3,000 ft. long, to the existing North Gila Drain Line No. 3 east of Yuma, between the Gila River and the Gila Gravity Canal.

The contract also calls for three 24-in.-dia concrete drain tile culverts without headwalls or transitions. Approximately 525 cu ft of rock excavation will be required. The excavation contract price is $7.00 a cu yd. Other prices on this excavation range from $4.00 to $10.40 a cu yd.

The contracting officer may order suspension of any work subject to climatic conditions. The whole or any portion of the contract work may also be suspended. Except for suspensions due to climatic conditions, however, the contractor shall not be denied actual, reasonable and necessary expenses caused by such delays.

The contractor furnishes all materials.

Prevailing wages include: tractor operators, including bulldozers, $3.235; trenching machine operators $3.235; teamsters $2.36; common laborers $2.36.

The five bids included:

| | | |
|---|---|---|
| 1C | Vinson Constr. Co., Phoenix, Ariz. | $13,841 |
| 2 | Tanner-Hauser-Garnett, Phoenix, Ariz. | 14,388 |
| 3 | Silberberger Constructors, Inc., Riverside, Cal. | 22,638 |
| EE | Bureau of Reclamation, Yuma, Ariz. | 12,829 |

(*Unit Price continued p. 95*)

## . . . North Gila Drain

| Bids: 10-7-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Excavation for drain, common | cy | 9,000 | $0.50 | $0.75 |
| rock | cy | 525 | 7.00 | 4.00 |
| Excavation structures | cy | 1,600 | 0.50 | 1.00 |
| Backfill around structures | cy | 1,300 | 0.40 | 1.00 |
| compact | cy | 1,300 | 2.00 | 0.50 |
| Port cmt conc drain tile, extra quality, 24" furn & instal | lf | 362 | 3.00 | 4.00 |
| Grav bkfl around pipe, furn & pl | cy | 110 | 6.00 | 5.00 |

Awarded: 10-24-58
Commence: 10-28-58 Complete: 12-12-58
Liquidated damages: $25/cal day

## Wide Spread on Manhole and Duct System Bids

Bids on this electric power and telephone manhole and duct system for the city of San Diego, Cal., ranged from a low of $113,708 to a high of $179,987, a spread of 58%.

The award to Federal Electric Co., San Diego, is 21.2% under the engineer's estimate and 3.2% below the second of the nine bids.

E. F. Gabrielson is city engineer.

The work includes construction of concrete power and telephone manholes, and a power duct system with appurtenances, in the Quivira Lease Area, Mission Bay Park.

Bids on the power manholes ranged from a low of $1,600 each, to a high of $3,285. On the telephone manholes, type T bids ranged from $500 to $1,036 each, and on type TA from $620 to $1,137 each.

All telephone and power ducts are fiber, concrete encased, and break down like this:

| | ft |
|---|---|
| Telephone ducts, 2-3 in. | 2,400 |
| Power ducts, 2-3 in. | 200 |
| 4-3 in. | 100 |
| Combination power and telephone ducts, 4-3 in. | 5,825 |
| 6-3 in. | 260 |
| Total ducts | 8,785 |

Street light conduits, included in the lump sum bid for ducts and appurtenances, are 11,400 ft of 2-in. A.C., with 24,000 ft of 5,000 v. cable. There are also 69 street light standards.

The power manholes are 8 x 10 ft. Twelve of the telephone manholes are 4 x 5 ft, and the remaining three are 5 ft, 6 in. x 7 ft, 6 in.

The nine bids on this manhole and duct system project shaped up like this:

| | |
|---|---|
| 1C Federal Electric Co., San Diego, Cal. | $113,708 |
| 2 ETS-Hokin & Galvan, San Diego, Cal. | 117,433 |
| 9 Davies Electric Co., San Diego, Cal. | 179,987 |
| EE City Engineer, Civic Center, San Diego | 144,260 |

| Bids: 10-21-58 Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Power duct syst & appurtenances | ls | job | $78,343 | $61,647 |
| Manholes, conc power | ea | 17 | 1,800 | 2,447 |
| telephone, tp T | ea | 12 | 500.00 | 879.00 |
| tp TA | ea | 3 | 620.00 | 957.00 |
| Crushed run rock bedding | cy | 30 | 10.00 | 25.60 |

Complete: 120 calendar days


IF YOU'RE FAMILIAR WITH STANPAT
read column B only
IF YOU'RE UNFAMILIAR WITH STANPAT
read column A and B

COLUMN A

Thousands of firms save thousands of drafting hours with STANPAT
STANPAT—the remarkable tri-acetate that is pre-printed with your standard and repetitive blueprint items, easily transferred to your tracings by an adhesive back or front. Relieves time-consuming and tedious detail of re-drawing and re-lettering specification and revision boxes, standard symbols, sub-assemblies, components and cross-sections. Saves hundreds of expensive hours of drafting time and money, frees the engineer for concentration on more creative work.
so simple to use:
① PEEL the tri-acetate adhesive from its backing.
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③ PRESS into position, will not wrinkle or come off.

COLUMN B

NEW resin back STANPAT ELIMINATES GHOSTING, offers better adhesive qualities on specific drafting papers.

### THE PROBLEM

Some of our longtime customers first called our attention to the "ghosting" problem. Certain tracing papers contain an oil which could be leeched out by the STANPAT adhesive (green back) causing a ghost.

### THE SOLUTION

A new STANPAT was developed (red back), utilizing a resin base which did not disturb the oils and eliminates the ghost. However, for many specific drafting papers where there is no ghosting problem, the original (green back) STANPAT is still preferred.

### WHICH ONE IS BEST FOR YOU?

Send samples of your drawing paper and we will help you specify. Fill out coupon below:

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Phone: FLushing 9-1693-1611

☐ Enclosed are samples of the drafting paper(s) I use (identify manufacturer). Please specify whether Rubber Base or Resin Base STANPAT is most compatible with these samples.
☐ Send literature AND samples of STANPAT.
☐ Please quote price on our enclosed sketches which we are considering to have pre-printed by STANPAT.

NAME_____
FIRM_____
ADDRESS_____
CITY_____ ZONE____ STATE____

# Tips on grade and alignment of Beth-Cu-Loy culvert pipe

BETHLEHEM STEEL

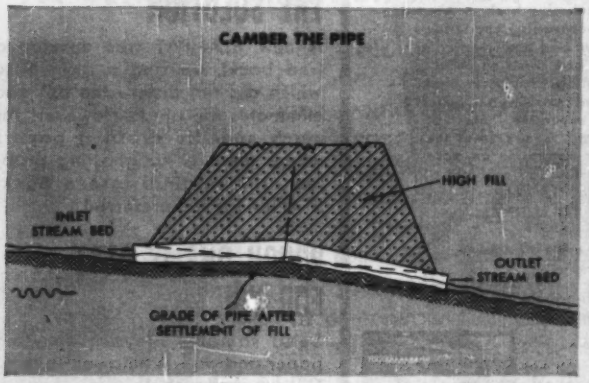
Because of its light weight and resistance to fracture, a culvert pipe made of Beth-Cu-Loy corrugated galvanized sheets is the easiest to install quickly and economically.

However, even with a Beth-Cu-Loy culvert, it pays to plan ahead for best results. Careless installation can undo a good design.

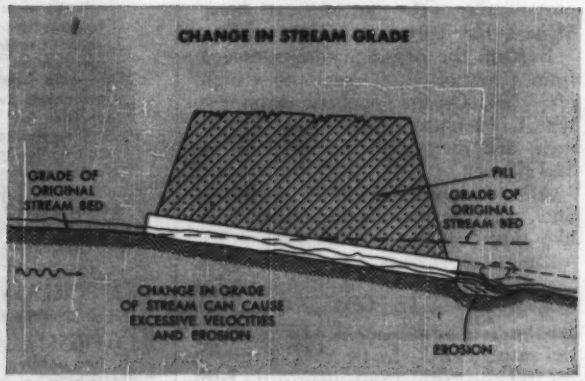
After making a careful study of the area and location, it's best to prepare a detailed plan to show all requirements. Width of highway, shoulders, slope of embankments, height of fill, grade of stream bed, elevation of culvert grade, length of pipe, skew angle, and other factors should be included.

The drawings shown here illustrate several typical culvert installations and grades under fill, with helpful comments covering the essentials in each example. Your own experience could no doubt embellish these cases to a considerable extent.

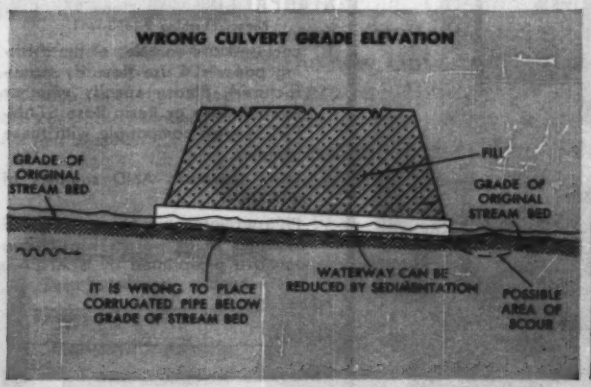
When you specify or order culvert pipe, be sure it is corrugated galvanized steel. Bethlehem does not fabricate this pipe as such, but we do manufacture the galvanized Beth-Cu-Loy sheets which fabricators make into pipe. In all respects Beth-Cu-Loy meets the rigid specs of the AASHO. For further information, write your fabricator for our Booklet 425-A, "Solving Drainage Problems."



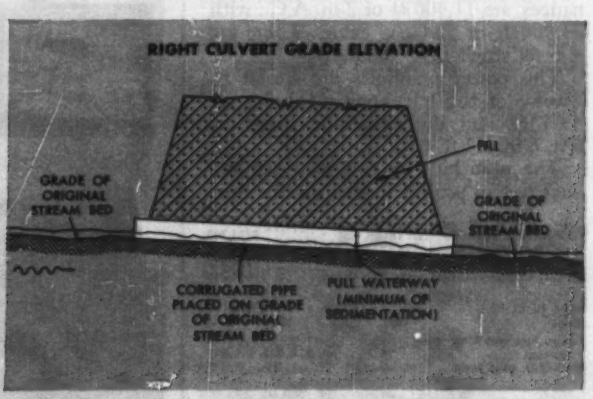

The corrugated steel pipe should always be cambered under a deep fill, so the grade of the pipe will level out with the settlement of the fill.


CHANGE IN STREAM GRADE
GRADE OF ORIGINAL STREAM BED
FILL
GRADE OF ORIGINAL STREAM BED
CHANGE IN GRADE OF STREAM CAN CAUSE EXCESSIVE VELOCITIES AND EROSION
EROSION

When the grade is increased in a stream bed and there is danger of excessive erosion at the outlet, the pipe should be continued to the point of disposal.

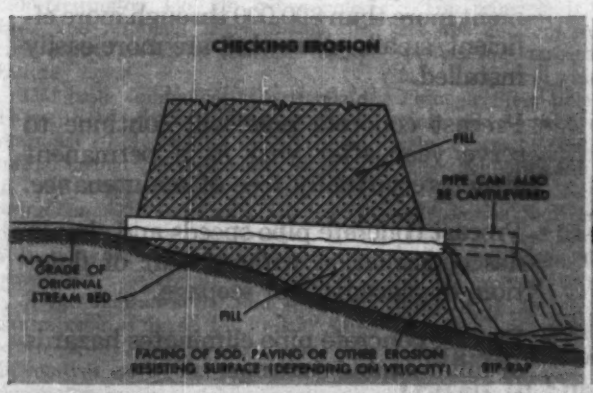

WRONG CULVERT GRADE ELEVATION
GRADE OF ORIGINAL STREAM BED
FILL
GRADE OF ORIGINAL STREAM BED
IT IS WRONG TO PLACE CORRUGATED PIPE BELOW GRADE OF STREAM BED
WATERWAY CAN BE REDUCED BY SEDIMENTATION
POSSIBLE AREA OF SCOUR

Do not place the pipe below the grade of the original stream bed. When this is done, there are hazards of sedimentation and serious scour at the exit.

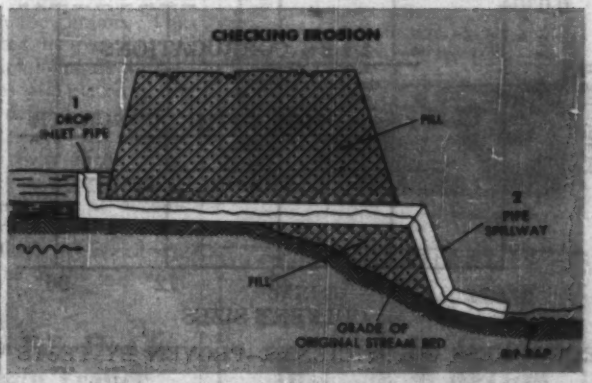

RIGHT CULVERT GRADE ELEVATION
FILL
GRADE OF ORIGINAL STREAM BED
GRADE OF ORIGINAL STREAM BED
CORRUGATED PIPE PLACED ON GRADE OF ORIGINAL STREAM BED
FULL WATERWAY (MINIMUM OF SEDIMENTATION)

Place the culvert pipe on the same grade as the original stream bed, and without change in the natural slope of the stream, if possible.

Installing a 48-in. asphalt-coated Beth-Cu-Loy culvert under a U. S. highway bypass near Harrisonburg, Va. Note grade of culvert and the precautions taken to assure correct alignment.




Two methods of checking erosion at the exit bank are shown here. The best and most economical solution is to extend the corrugated steel pipe as a cantilever.

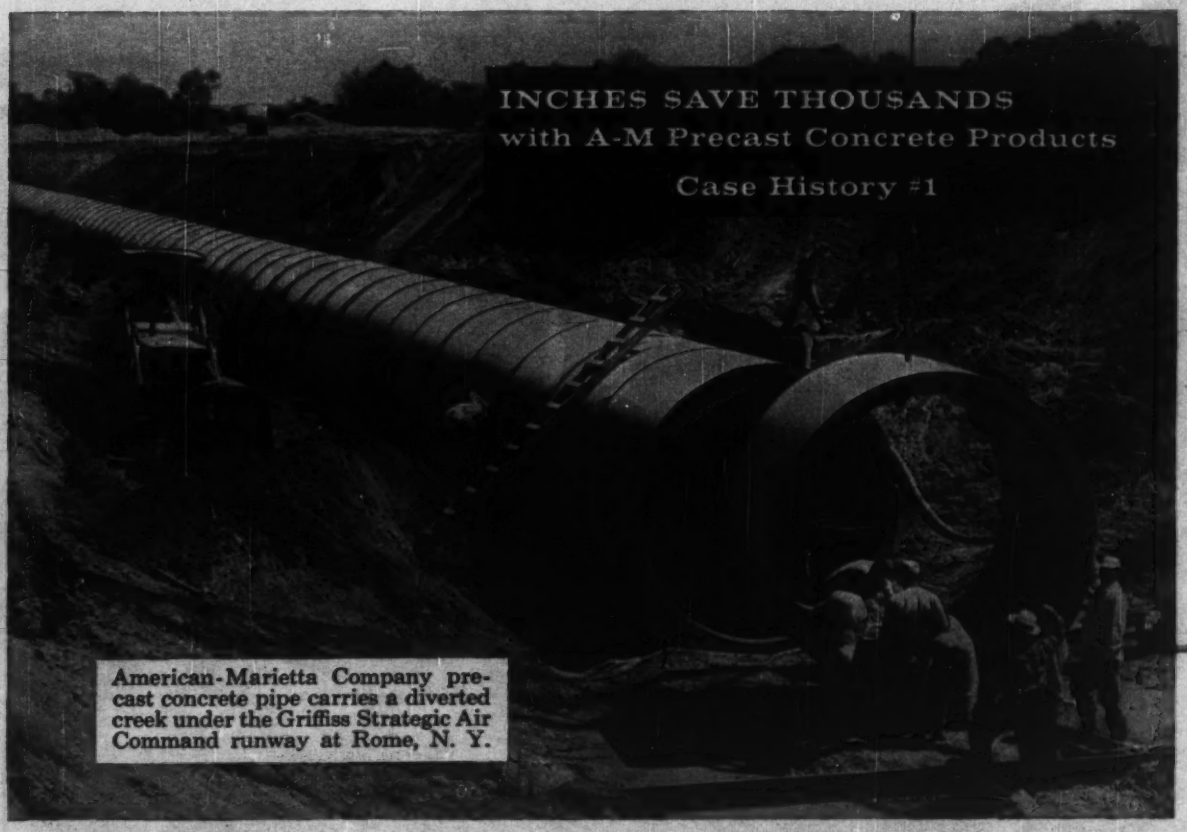



Two practical methods of checking soil erosion by the use of (1) a corrugated drop-inlet pipe at the entrance, and (2) a corrugated pipe spillway at the exit.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor* Bethlehem Steel Export Corporation

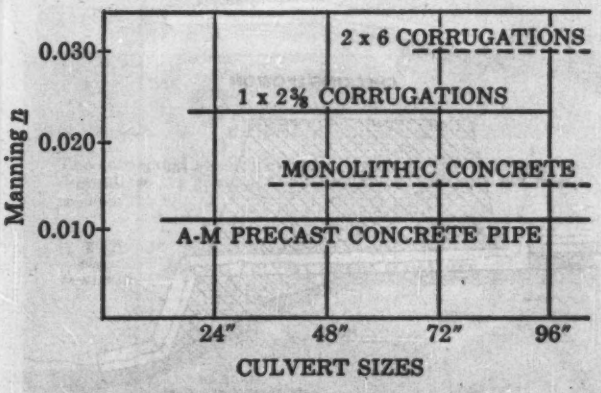
# BETHLEHEM STEEL

BETHLEHEM STEEL




American-Marietta Company precast concrete pipe carries a diverted creek under the Griffiss Strategic Air Command runway at Rome, N. Y.

# SMOOTHER SURFACES OF A-M CONCRETE PIPE CUT COSTS $90,000




ROUGHNESS COEFFICIENTS—PROVEN BY TESTS

- Concrete pipe saved the U. S. Government more than $90,000 through more efficient, smaller sizes that are more easily installed.
- Precast concrete pipe will continue to serve year after year as a permanent structure virtually free of maintenance.
- Precast concrete pipe speeds and simplifies construction without fear of flotation, displacement or seepage.
- Precast concrete pipe eliminates hazards of inflammable coatings.

**AMERICAN-MARIETTA COMPANY**
**CONCRETE PRODUCTS DIVISION**
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

**Standard parts combine to produce . . .**

# Unusual Off-the-Road Truck

An off-the-road, four-wheel drive truck recently developed for the U. S. may find fast acceptance among highway builders, surveyors, test drillers, bridge foundation men and others who go into the wilderness ahead of roads.

The truck can carry a 3,000-lb load, climb a 24-in.-high verticle obstacle, clear 22-in.-high obstructions and climb a 60% grade. While it is not a swamp buggy, it can operate in mud, sand, snow and marsh that would stop most other vehicles. Its top over-the-road speed is 42 mph.

The vehicle was assembled to Corps of Engineers specifications by the Marmon-Herrington Co. of Indianapolis, Ind., and although it is unique, its components are all of standard manufacture.

The basic component is a standard 1½-ton Ford chasis. Tires are conventional 10 ply 18.00 x 26 directional treads having a loaded radius of 27.2 in. and a diameter of 62¾ in. The torque proportioning unit installed in the rear axle is made by No-Spin. The hydraulic power steering unit and the power brakes are regular Ford products, as is the transmission. The auxilliary transmission is made by Fuller. The winch is by Gar Wood while the differentials are by Ford and Marmon-Herrington.

The truck's unusual features include a tire inflation schedule on the dashboard, a front wheel position indicator, and rear axles equipped with sheer plates.

The tire inflation schedule serves as a guide to a trained driver in manually adjusting tire pressures for maximum efficiency in all types of terrain under varied payloads at at different speeds.

The front wheel position indicator—usually found only on amphibious vehicles—is of great importance during operation in mud, snow or sand. It tells the driver the exact position of the front wheels so that he can keep from "plowing in" too deep. It also helps the driver keep full control.

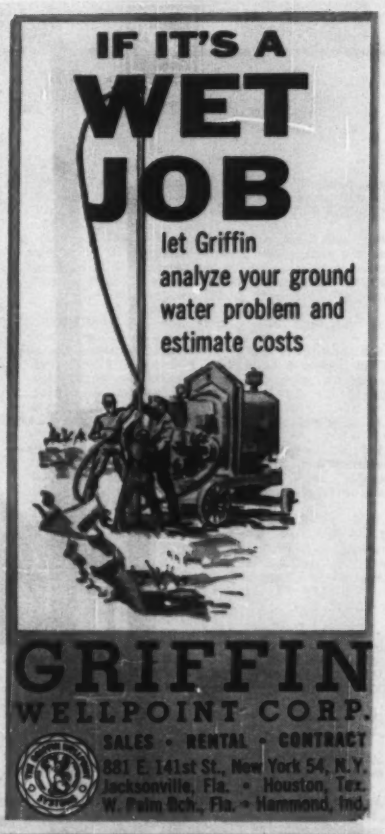
The sheer plates on the rear axles are a feature that can be appreciated by any earthmover who uses trucks. Where an ordinary broken axle usually takes hours and sometimes even days to repair, the sheer-plated axle can be repaired within 15 minutes after a breakdown.

The principle is simple. The axles are split adjacent to the pinions. The sections are connected by two face-to-face "flanges" in which holes are drilled. Through these holes are placed sheer pins, the number depending on the vehicle weight and size. Before the axles themselves can twist off or break, the pins sheer. Replacement requires only simple tools and can be accomplished in the field without removal of wheels or axles. The price is not set, but it's expected to be in the neighborhood of $12,000.

## Aluminum Pre-Fab House Travels In Single Trailer

An aluminum exterior prefabricated house of 5½ rooms, complete with bathroom and kitchen, is being manufactured by National Homes Corp. The entire house can be transported to its site in a single truck-trailer.

The house has a 40-ft front, weighs 11 tons, and when completed covers an area of 1,120 sq ft. National Homes Corp., Lafayette, Ind.

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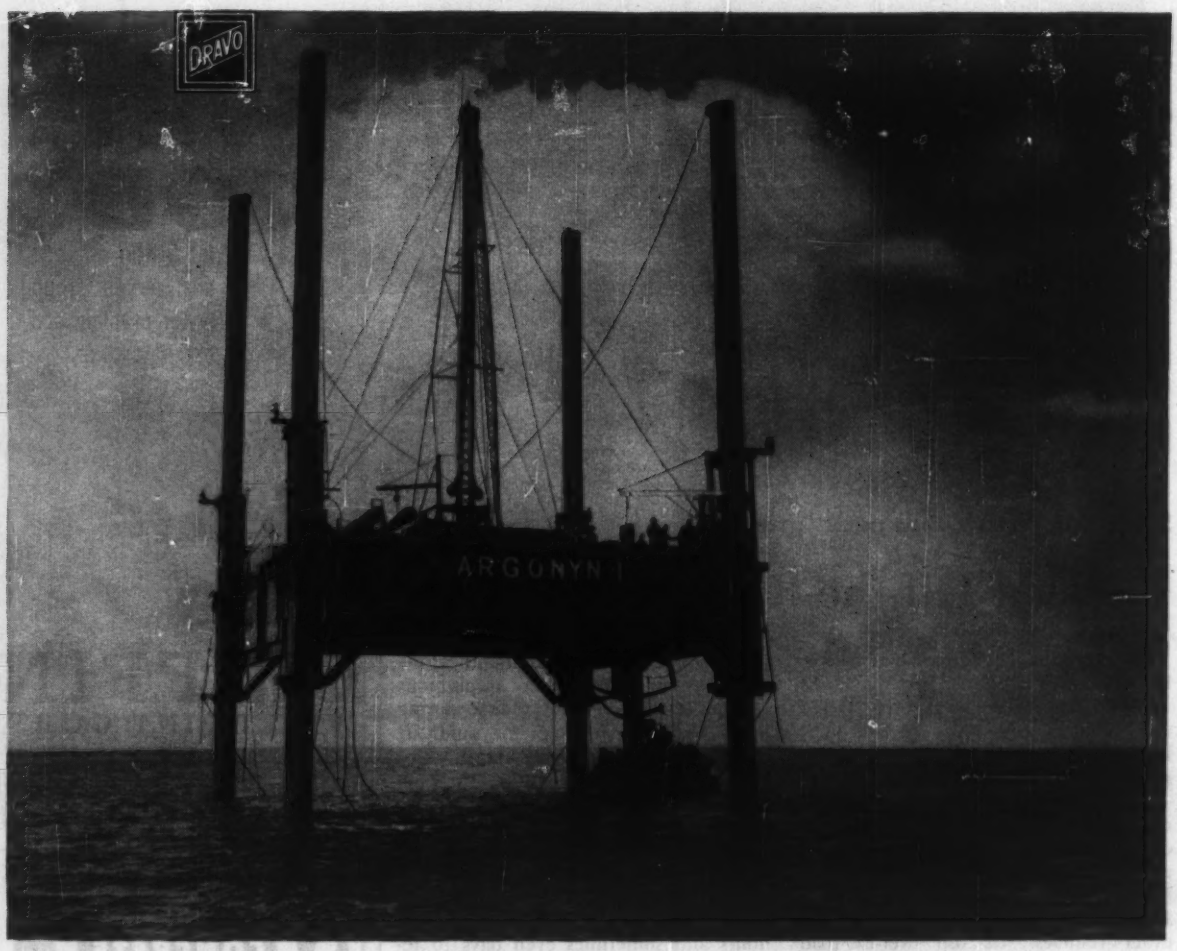
3206 Houston Ave., Houston 9, Texas
1136 W. Orangethorpe, Fullerton, Calif.
Milwaukee, Twin Cities, Denver, New Orleans



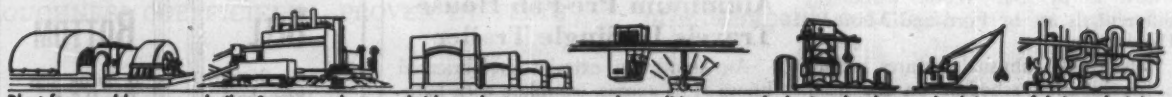

# First Offshore Drilling Platform on U. S. Side of Lake Erie Built by Dravo

The first offshore gas well on the American side of Lake Erie is being drilled by New York State Natural Gas Corporation. Operations are underway, near Conneaut, Ohio, from a new mobile rig built by Dravo.

The "Argonyn-1" will work in 30 to 60 feet of water and can be towed easily from one site to another. Of welded pontoon construction, it is 50 feet square. At each location, the 130-foot-long legs are driven firmly into the lake bottom and the platform is hoisted by dual hydraulic jacks on each leg.

Dravo's wide experience on construction jobs "in or around water" can help you realize genuine economies on such projects. For information on this or the other products and services pictured below, write DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

**DRAVO**
CORPORATION



Blast furnace blowers • boiler & power plants • bridge sub-structures • cab conditioners • docks & unloaders • dredging • fabricated piping

foundations • gantry & floating cranes • gas & oil pumping stations • locks and dams • ore & coal bridges • process equipment • pumphouses & intakes

river sand and gravel • sintering plants • slopes, shafts, tunnels • space heaters • steel grating • towboats, barges, river transportation

# Bids Asked—Low Bidders—Contracts Awarded—

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager*
*J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports*
*J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.*

## NEW ENGLAND

### BUILDINGS—BA

Mass., Braintree—POWER—BA 1/16—Town, Electric Light Dpt., 44 Allen St., Braintree, Norton P. Potter Station Power Plant—Fore River, East Braintree. $800,000. Plans deposit $100. Extended date. Gilbert Assoc. Inc., 525 Lancaster Ave., Reading, Pa., engr. CD 10/21.

Mass., Sturbridge—SCHOOL—BA 1/16—Tantasque Regional School Comn., c/o Supt. Schools, Regional High School addn. $650,000. Plans deposit $50. Stoner Assoc., 118 Newbury St., Boston, archts. CD 1/8.

▲ Conn., Norwalk — SCHOOL — BA 1/20 — Town, City Clerk, City Hall, South Norwalk, general constr. and site work, Brien McMahon Junior High School. $3,855,250. Plans deposit $100. Lyons & Mather, 211 State St., Bridgeport, archts. Paul D. Harrigan, 909 Whalley Ave., New Haven, engr. CD 1/23.

### HEAVY CONSTRUCTION—LB & CA

† Five Boro Constr. Corp., 2 Lafayette St., New York 7, N. Y., CA $452,634, constr. ADC facilities, consisting Flight Simulator Training Bldg., Readiness Crew Bldg. Rocket Storage Bldg. and electrical distri., Loring Air Force Base, ENG-19-016-59-38, LIMESTONE, ME. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Nov. 26. CD 11/21.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord, Bids opened 12/11.

N. H.—Landers & Griffin, Inc., 800 Islington St., Portsmouth, N. H. LB $527,580 (6 bidders) 3.729 mi. surf. treated gravel roadway, Cornish-Plainfield, Sullivan Co.;

N. H.—Weaver Bros. Constr. Co., Inc., 259 South Main St., Concord, N. H. LB $383,857 (6 bidders) b. conc. roadway 1,545 mi. Hopkinton-Warner, Merrimack Co. CD 12/3.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 12/9,

Mass.—Suburban Excavating, Inc., 4 New Salem St., Wakefield, Mass. LB $737,668, est. $816,891, state hy. and stringer bridge, Rte. 125. F-372 (3), Andover;

Mass.—Rufo Constr. Co., 89 Adams St., Newton, Mass. LB $245,852, est. $381,794, ramps, etc. Washington and Grove Sts. and Rte. 128 Interchange. U-272, Newton;

Mass.—Anthony Simeone & Sons, Inc., 500 Turnpike St., Canton, Mass. LB $293,502, est. $330,211, State Hy. and steel stringerbridge, East Main St., Rte. 123. S-112 (1), Norton. CD 11/26.

### BUILDINGS—LB & CA

Winson Constr. Co., Inc., 57 Bay St., Winslow, Me. CA $450,000 HIGH SCHOOL, FAIRFIELD, ME. Fairfield High School, supt. Schools, Fairfield, Me. Bids Dec. 2. CD 12/9, under LB.

Monaco Constr. Co., 94 Reservoir Ave., Bridgeport, Conn. LB $539,400 (9 bidders) enlarge SCIENCE BLDG. Danbury State Teachers College, Proj. BI-R-157, DANBURY, CONN. State P. Wks. Comr., 165 Capitol Ave., Hartford, Conn. Bids Dec. 10. CD 12/3.

E. & F. Constr. Co., 104 Wells St., Bridgeport, Conn. LB $864,000 (6 bidders) HIGH SCHOOL addn., Queen St., NEWTOWN, CONN. Town, School Bldg. Com., Town Hall, Newtown, Conn. Bids Dec. 8. CD 11/11.

▲ E & F Constr. Co., 94 Wells St., Bridgeport, Conn., CA $2,352,235 North End HIGH SCHOOL, STRATFORD, CONN., Town, School Bldg. Comn., Town Hall, Stratford, Conn., Bids Dec. 4, awarded Dec. 11. CD 12/11, under LB.

## MIDDLE ATLANTIC

### HEAVY CONSTRUCTION—BA

† New York—BA On Or About 1/15—U. S. Eng., 111 E. 16th St., New York, Zone 3, constr. Unit No. 2, Part 2 (Twin Orchards), Endicott, Johnson City and Vestal Flood Control Proj., Vestal, Serial No. CIVENG-30-075-59-33. $300,000-$500,000. CD 9/22.

▲ N. Y., Brooklyn—BA 1/16—Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York, Zone 7, Contr. No. 2C, Kent Ave. Intercepting Sewer, Franklin St. and Kent Ave. for Newtown Creek Pollution Control Project, Brooklyn Boro. Plans deposit $80. CD 11/16/44.

† N. Y., Montauk—POWER PLANT—BA 1/22—U. S. Eng., 111 E. 16 St., New York, Zone 3, constr. power plant, Montauk AC&W Station, Serial No. ENG-30-075-59-123. $500,000-$1,000,000. CD 7/3.

### BUILDINGS—BA

Md., Towson—SCHOOL—BA 12/30—Baltimore Co. Bd. Educ., Aigburth Rd., Zone 4, 1 story masonry Scotts Branch Elementary School, Marriotts Rd. north of Liberty Rd., west of Baltimore. $750,000. Plans deposit $50. Wm. E. Gray, 328 N. Charles St., Baltimore, Zone 1, archt. CD 5/15/56.

N. J., Princeton—SCHOOL—BA 1/6—Princeton Twp. Bd. Educ., Johnson Park Elementary School. $500,000. Plans deposit $75. Kelly & Gruzen, 60 Park Place, Newark, archts. Harwood & Gould, 100 W. 42 St., New York, N. Y., engrs. Bids Oct. 30 rejected. CD 10/1.

▲ N. Y., Brooklyn—HOSPITAL—BA 1/14—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, general constr., plumbing, heating and ventilating and electrical work for new addn. and modernization existing buildings to Cumberland Hospital, Auburn Pl. and N. Portland Ave., Brooklyn Boro. Plans deposit $40. CD 12/9.

▲ N. J., Hoboken—HOUSING—BA About 1/22—Housing Auth. of City of Hoboken, 400 Harrison St., two 10 story, 208 unit housing, Harrison Gardens, Jackson and Harrison Sts., Proj. NJ 15-3, $3,000,000. Irwin Gerber, 11 Commerce St., Newark, archt. CD 7/19/56.

▲ N. Y., New York—TECHNOLOGY—BA 1/23—Bd. Higher Educ., City College, Rm. 10, Brett Hall, 136th St. and Convent Ave., Zone 31, (1) general constr. (2) elevators and moving stairways (3) plumbing (4) heating and ventilating (5) electrical work (6) casework for Technology Bldg. at City College. Plans deposit (1) $75.;(2 and 6), $30 each; (3) $50; (4) $60; (5) $75. CD 1/10.

### HEAVY CONSTRUCTION—LB & CA

▲ Brookfield Constr. Co., 521 5th Ave., New York, N. Y., CA $6,708,333, Contr. GWB-190.000, constr. Section No. 7 of approach roadway sys. in New York City for lower level expansion of George Washington Bridge; Contr. GWB-190.011, constr. Section 8 of approach roadway sys. in New York City for lower level expansion of George Washington Bridge, incl. constr. foundations for Bus Passenger Facility over depressed Expressway in blocks between Fort Washington Ave. and Wadsworth Ave., NEW YORK and NEW JERSEY. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Dec. 2. CD 12/4, under LB.

▲ Gall Contg. Co. and L. G. DeFelice & Sons, Inc., 33-15 Lawrence, Flushing, N. Y., CA $3,387,270, 1 mi. section 8-lane Scenic Parkway parallel to Niagara River and gorge between Treadway Inn and Goat Island, Niagara Falls, Niagara Co., Spec. No. 632.0, Niagara, Contr. No. N18, NEW YORK. Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Nov. 20. CD 11/24, under LB.

Triton Constr. Corp., 66 Court St., Brooklyn 2, N. Y., LB $624,900, Contr. No. 3077a, general reconstr.

### PROJECTS COVERED

**By Size**

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

**By Regions & Classes of Construction**
**(In order of Listing)**

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

| | |
|---|---|
| New England | Middle West |
| Middle Atlantic | West of Mississippi |
| South | Far West |

PROPOSED WORK

| | |
|---|---|
| Water Supply | Public Buildings |
| Sewers, Waste Disposal | Mass Housing |
| Bridges | Commercial Buildings |
| Streets & Roads | Industrial Buildings |
| Earthwork, Waterways | Unclassified |

**In These Stages**

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

**Symbols and Abbreviations Include:**

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over |
| ENR | Engineering News-Record |
| CD | Construction Daily |

For additional reports see Construction Daily.

Wharf Terminal, foot of 29th St., Gowanus Bay, BROOKYYN, N. Y. Comr. Marine & Aviation, Rm. 13, Pier 1, North River, New York 4, N. Y. Bids Dec. 5. CD 11/11.

▲ Melwood Constr. Corp., 507 Fifth Ave., New York, N. Y., LB $2,747,000, reconstr. swing span and approaches of Madison Avenue Bridge over Harlem River between Manhattan and Bronx Boros, NEW YORK, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Bids Dec. 5. CD 11/26.

MARYLAND—State Rds. Comn., 108 Lexington St., Baltimore, Zone 2,

The Bituminous Constr. Co., 3301 Ridgewood Ave., Baltimore 15, Md., CA $599,688, drainage, wid'n. surf. 3.159 mi. Route 2 near Baltimore, AA-453-6-52C, Anne Arundel Co. Bids Nov. 13. CD 11/20, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

John H. Ensey, 1619 Ridgely St., Baltimore 30, Md., CA $572,026, grading, drainage, surf. and relocation 3.96 mi. State Rte. 468 southerly from Collinson Corner, AA 505-1-520, Anne Arundel Co. Bids Oct. 28. CD 11/20.

Transportation Corp. of America, 3600 M St. N.W., Wash., D. C., LB $663,918 Bid A, $106,691 Bid B (6 bidders) widening, paving New York Ave. between 1 St. N.E. and 7 St. N.W., Fed. Aid Proj. F-53(9), WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids Dec. 12. CD 12/3.

### BUILDINGS—LB & CA

▲ Edward Corning Co., 302 Bedford St., Stamford, Conn., LB $1,493,000, 2 story HOSPITAL addn., MOUNT KISCO, N. Y. Northern Westchester Hospital, E. Main St., Mount Kisco, N. Y. Bids Nov. 25. CD 11/3.

Herbert Kligman, 936 Stuyvesant Ave., Union, N. J., Own Forces, $525,000, 25 HOUSES, Raritan Rd., Cambridge Estates, CLARK, N. J.

▲ Edward Brinkerhoff, 732 Union Ave., Middlesex, N. J., Own Forces, $1,000,000, 46 HOUSES, Green Brook Rd., MIDDLESEX, N. J.

▲ A. A. LaFountain, Inc., 159 Beech St., Hackensack, N. J., CA $1,339,400, general contract COURT HOUSE, NEW BRUNSWICK, N. J. Bd. Freeholders, Middlesex Co., Court House, New Brunswick, N. J. Bids Nov. 25. CD 12/2, under LB.

▲ J. & H. Cosden Constr. Co., 800 Glenside Court West, Oradel, N. J., Own Forces, $1,750,000, 70 HOUSES, Blauvelt Place, ORADELL, N. J.

▲ Henry A. Knott, 2406 Greenmount Ave., Baltimore, Md., CA $2,010,000 brick, concrete, steel, block Johnnycake JUNIOR HIGH SCHOOL near Catonsville, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson 4, Md. Bids Dec. 4. CD 12/9, under LB.

## SOUTH

### BUILDINGS—BA

▲ Va., Arlington—SCHOOL—BA 1/13—Arlington Co. Bd. Educ., 1426 Quincy St., Yorktown High School. Plans deposit $75. Rhees Burket, 1223 Connecticut Ave. N.W., Wash., D. C., archt. CD 5/19/57.

▲ Ala., Sheffield—HOSPITAL—BA 1/15—Colbert Co., Courthouse, hospital addn. $1,600,000. CD 9/12.

▲† Va., Langley—HEADQUARTERS—BA 2/5—General Services Admin., P. Bldgs. Service, General Services Bldg., 19th and F Sts. N.W., Wash. 25, D. C., constr. (except elevator plant and escalators) headquarters bldgs., Central Intelligence Agency, Proj. No. 44122; adv. ENR 12/18. CD 8/7/56.

### BUILDINGS—SLC

W. Va., Beckley—BANK—Bank of Raleigh, Main and Fayette Sts., soon lets contract, 2 story, 73 x 102 ft., stone precast concrete bank. $500,000. Plans deposit $25. Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd., Roanoke, Va., archts. CD 6/12.

### HEAVY CONSTRUCTION—LB & CA

▲ WEST VIRGINIA—State Road Comn., Charleston, Zone 5,

Keeley Constr. Co., Box 208, Clarksburg, W. Va., CA $1,984,604, grading, draining 2.103 mi. Interstate 64 from 0.5 mi. West of Sect. 44 to Kanawha River, and grading, draining, b. conc. paving W. Va. Rte. 17 at intersection of Interstate Rte. 64, Proj. I-64-1(23)41 and S.206(6), Putnam Co. Bids Nov. 25, awarded Dec. 10. CD 12/1, under LB.

▲ A. C. Samford, Inc., P. O. Box 1229, Albany, Ga. CA $1,359,900. Haw River Sewage treatment plant, BURLINGTON, N. C. City of Burlington, City Hall, Burlington, N. C. CD 12/1, under LB.

† Coley & Petersen, Inc., 840 W. 25 St., Norfolk, Va. LB $429,612 (7 bidders) off-site utilities for Capehart Housing, Marine Corps Base, NBy 10476, Spec. 10676/57, CAMP LEJEUNE, N. C. Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Dec. 9. CD 11/20.

† R. N. Rouse & Co., 1019 N. William St., Goldsboro, N. C. CA $433,733, Ammunition Storage Facilities,

# How THORITE and THOROSEAL made this underground structure sound again!

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Water has entered the concrete and caused corrosion of reinforcing rods, blistering the concrete off surface and causing structural weakness throughout building.

Reinforcing was cleaned, all corrosion was removed and brush coat of THORITE applied over entire patching area, then filled in with trowel coats of THORITE, even with surrounding surfaces.

*THORITE Patching Mortar sets in 20 to 30 minutes and can be coated with THOROSEAL while hardening.*

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STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNA. CENTERVILLE, IND.


Seymour Johnson Air Force Base, ENG-31-075-59-12, GOLDSBORO, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Nov. 25. CD 10/28.

† **Jefferson Constr. Co.**, 3128 Coral Way, Miami, Fla. LB $495,852, est. $662,373 readiness crew Bldg., ENG-08-123-59-20, HOMESTEAD AIR FORCE BASE, FLA. U. S. Eng., Box 4970, Jacksonville, Fla. Bids Dec. 4. CD 11/7, under Florida.

▲ **Bumby & Stimpson**, P. O. Box 2608, Orlando, Fla., LB $1,234,256, 34 mi. gravity lateral sewers, GULFPORT, FLA. City, City Hall, Gulfport, Fla. Bids Dec. 9. CD 11/25.

**A. G. Pinkston & Co.**, 1805 County St., Portsmouth, Va., LB $407,230 sanitary sewer imprvs. Proj. 26A, Northeast sewer laterals, ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla. Bids Dec. 3, CD 11/22/44.

▲† **S. Morgan Smith Co.**, 500 Lincoln St., York, Pa., CA $2,815,950 constr. three 74,600 hp. hydraulic turbines for addition to Wilson Dam, Muscle Shoals, ALABAMA. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Awarded Dec. 4; **Brown-Boveri Co.**, 19 Rector St., New York, N. Y. CA $2,637,135 constr. three hydroelectric generators totaling 54,000 kw. to be constr. in Baden, Switzerland (Alabama).

## BUILDINGS—LB & CA

▲ **Crosland-Roof Constr. Co.**, P. O. Box 1313, Columbia, S. C. CA $1,166,398. A.C. Flora HIGH SCHOOL, COLUMBIA, S. C. City School Bd., 1311 Marion St., Columbia, S. C. Bids Nov. 6. CD 10/27, under Richland Co. School Dist. No. 1, as owner.

▲ **J. A. Jones Constr. Co.**, 133 Ellis St. N. E., Atlanta, Ga. CA $1,185,851 Fulton County JAIL, ATLANTA, GA. Comrs. Fulton Co., Roads & Revenues, 409 Admin. Bldg., Atlanta, Ga. Bids Nov. 12, awarded Dec. 1. CD 11/20, under LB.

**J. P. Roberts & Son Constr. Co., Inc.**, 203 E 1, Rome, Ga. CA $400,000 men's DORMITORY, MOUNT BERRY, GA. Berry College, Mount Berry, Ga. CD 10/31, under Ga., Rome.

▲† **Florida Builders, Inc.**, 700 43 St. S., St. Petersburg, Fla., LB $6,903,671 Base bid with alternates (9 bidders) 400 units Capehart, HOUSINGG, FORT RUCKER, ALA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Dec. 10. CD 11/19.

▲† **Pearce & Gresham Co.**, 202½ 2 Ave. S.E., Decatur, Ala., LB $1,060,948, preflight evaluation laboratory, Redstone Arsenal, ENG-01-076-59-34, HUNTSVILLE, ALA. U. S. Eng., Box 1169, Mobile, Ala. Bids Nov. 25. CD 12/12, under LB.

▲ **Robert C. Crouch & Co.**, Sterick Bldg., Memphis, Tenn., LB $1,498,100, restoration of Ante-Bellum Bldg. (Old Capitol Bldg.) incl. 3 story, copper roof, air-conditioning, JACKSON, MISS. State Bldg. Comn., State Office Bldg., Jackson, Miss. Bids Dec. 10. CD 11/25.

**Van Landingham Lumber Co.**, Starkville, Miss., LB $156,392, Coca Cola BOTTLING PLANT, Hy. 12, STARKVILLE, MISS. Starkville Coca Cola Co., Starkville, Miss. Thomas H. Johnston, Jr., Box 512, Starkville, Miss., archt. Bids Nov. 25.

▲ **The Florsheim Co.**, 50 Fannin St., Shreveport, La., CA approx. $1,275,000, 3 story OFFICE, BOOK STORE, ALEXANDRIA, LA. Louisiana Baptists Convention, Highland Baptist Church, 520 Olive St., Shreveport, La. Bids Nov. 12. CD 11/19, under LB.

**St. Bernard Parish School Bd.**, Court House Bldg., Chalmette, La., rejected bids Dec. 3, 1 story, steel, frame, brick, concrete block and tile Carolyn Park Elementary School, CHALMETTE, LA. LB $617,975. Will re-advertise. CD 12/9, under LB.

▲ **Southern Constr. Co.**, Rossville, Ga., LB $1,349,000 est. $1,979,235 (9 bidders), 2 story, no bsmnt., brick MAINTENANCE BOARD BLDG. addn., ENG-15-029-59-1, FORT KNOX, KY. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids Dec. 11. CD 11/17.

**Hartz-Kirkpatrick Co.**, 25 Frederica St., Owensboro, Ky. CA $640,315, HOSPITAL addn., HOPKINSVILLE, KY. Jennie Stuart Memorial Hospital, 321 W. 17th St., Hopkinsville, Ky. Bids Oct. 2. CD 10/13, under LB.

**Western Hills Development Co., Inc.**, 4003 Gallatin Rd., Madison, Tenn. Owner Builds. $500,000, Sutherland Heights RESIDENTIAL SUBDIVISION, Section 3, NASHVILLE, TENN.

† **Fred E. Hicks Constr. Co.**, 4520 Clinton Hy., Knoxville, Tenn. LB $523,350. installation water distr. sys. exten. for Oakridge Gaseous Diffusion Plant, IFB 401-59-4A, OAK RIDGE, TENN. U. S. Atomic Energy Comn., P. O. Box E, Oak Ridge, Tenn. Bids Nov. 25. CD 11/13.

# MIDDLE WEST

## BUILDINGS—BA

▲ **Wis., Stevens Point**—PHYSICAL EDUCATION—BA 1/16—Wisconsin State Colleges Bldg. Corp., Madison, 1 story bsmnt., 236 x 243 ft. physical education bldg. $1,000,000. Schubert, Sorensen & Assocs., 308 Hoeschler Bldg., La Crosse, archts. CD 7/11.

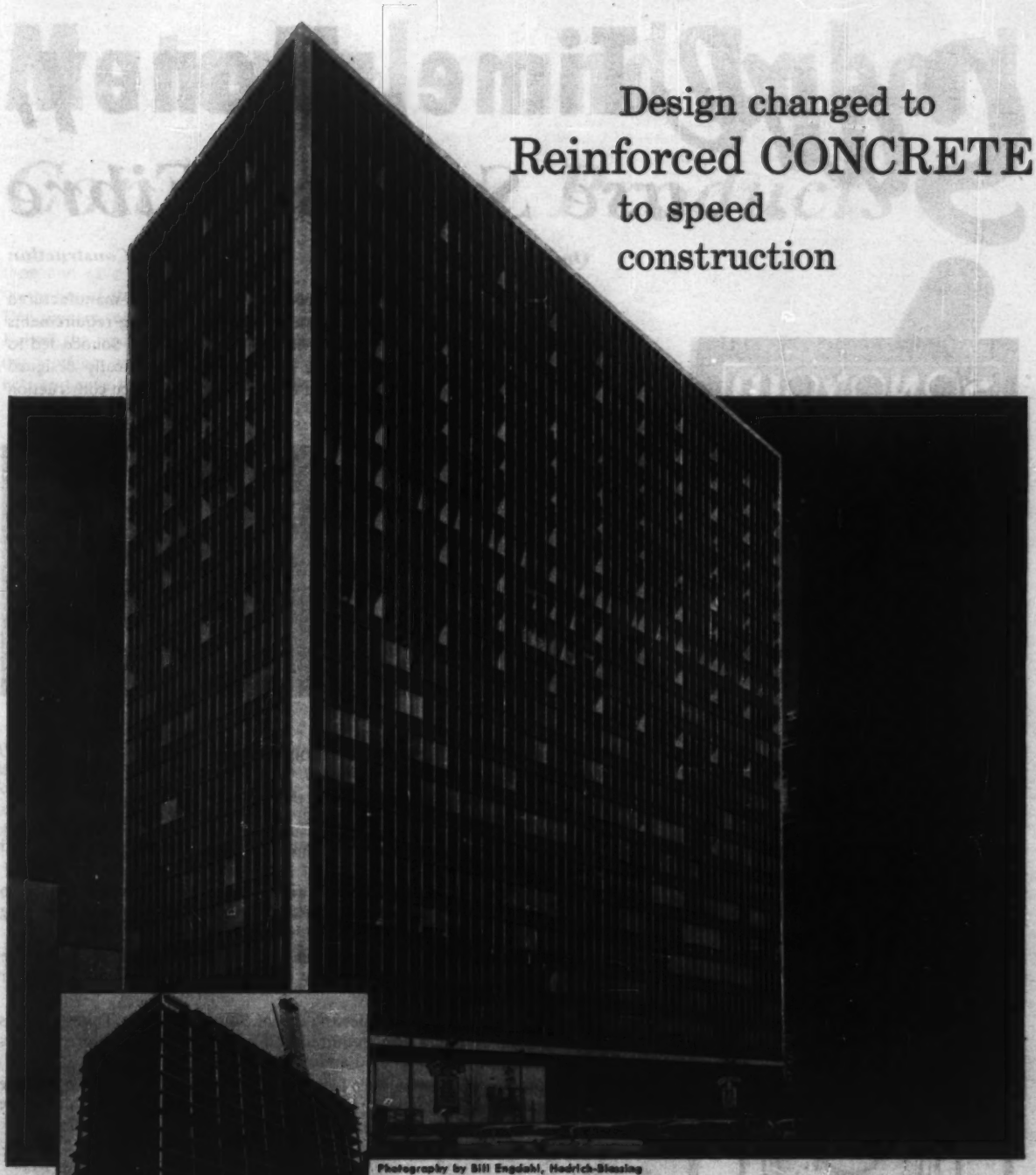
**Ill., Bourbonnais**—DORMITORY—BA 1/20—Olivet Nazarene College, 45 Marsille, 4 story, brick dormitory bldg. $400,000. Gregg & Briggs, 1st National Bank Bldg., Peoria, archts. CD 7/4.

## BUILDINGS—SLC

▲ **Ill., Northbrook**—SHOPPING CENTER—Northbrook Commercial Trust, 824 Waukegan Rd., soon lets contract Northbrook Meadows Shopping Center, incl. 22 units, sewers, water mains, parking, Cherry and Church Sts. $1,500,000. Clarence L. Dahlquist, 1625 Glenview Rd., Glenview, archt. CD 8/7.

(Continued on page 106)

# Design changed to Reinforced CONCRETE to speed construction



Photography by Bill Engdahl, Hedrich-Blessing

CLEVELAND ELECTRIC ILLUMINATING BUILDING
Architects: Carson & Lundin, New York City
Engineers:
McGeorge, Hargett & Associates, Cleveland
Contractor:
George A. Fuller Company, New York City

Another impressive example of reinforced concrete construction is Cleveland's newest downtown office building—headquarters of the Cleveland Electric Illuminating Company. The original design for the frame was changed to reinforced concrete due to a fourteen months' delivery date for structural members. As the foundation soil was water-soaked clayish sand, with bedrock 206 feet down, the building was "floated" on a reinforced concrete mat placed 18 feet below the street. Before you build, investigate this economical, flexible, and timesaving medium of construction.

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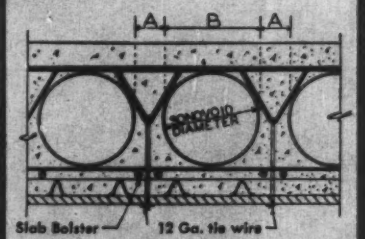
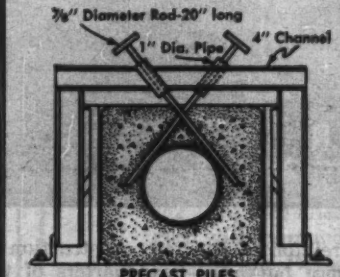
Sonoco's Fibre Construction Products are precision-manufactured under a rigid quality control system to meet the exacting requirements of the industry. Years of research in the laboratories of Sonoco led to the development of these low-cost products . . . specifically designed to assist contractors, reduce the cost of construction, reduce construction

**Simple methods of Placing and Hold down to prevent flotation.**




SLABS and DECKS




PRECAST PILES

In concrete construction, form voids in concrete members with SONOVOID Fibre Tubes

. . . best way to economize in man-days on the job

. . . best way to save on over-all cost.

The use of the voided concrete system reduces weight of concrete floor and roof slabs of buildings and cast-in-place or precast bridge decks.

You'll save concrete and reinforcing steel too because these low-cost SONOVOID Fibre Tubes displace low-working concrete at the neutral axis without impairing structural strength.

And because less concrete is required per square foot, greater areas can be formed and poured at one time . . . faster construction means savings in labor and money!

For precast, prestressed concrete piles the use of SONOVOID Fibre Tubes reduces the amount of concrete and steel required and reduces the weight of the piles so that they are more easily handled and driven.

Order SONOVOID Fibre Tubes in sizes from 2.25" to 36.9" O.D. Unless otherwise specified shipment will be made in 18 ft. lengths. End closures available. Write for slab design tables and complete technical information.

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time and save expensive materials. For engineers and architects, the versatility of these products permit new design and structural features. For owners, obviously, their use results in a saving in overall cost. Follow the lead of other successful contractors from coast to coast . . . use architect and engineer approved Sonoco Fibre Construction Products and save time, money, materials and labor!

Whenever there's a round column of concrete to be formed, there's a low-cost Sonotube Fibre Form to do the job faster and more economically than by any other method.

Whether the columns are for a building, parking garage, school, hospital, church, bridge or overpass . . . makes no difference because Sonotube Fibre Forms are available in sizes from 2" to 48" I.D.

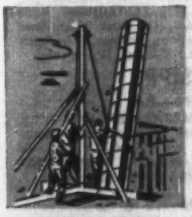
Choose from 3 types:

Seamless (Pat. pend.) a premium form for finished columns
"A" Coated—standard form for exposed columns
"W" Coated—for unexposed columns.

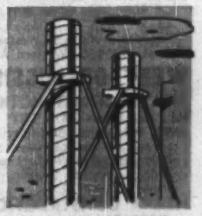
Unless other lengths are specified shipment will be made in standard 18 ft. lengths.

Lightweight and easy to handle

Can be sawed to size on the job

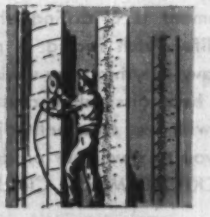


Place tubes by conventional methods



Only minimum bracing is required

Pour by normal method at normal rate



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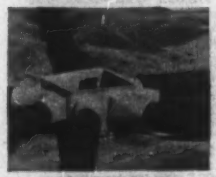

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Construction Products

SONOCO PRODUCTS COMPANY

(Continued from page 102)

▲ **Ind., Michigan City**—APARTMENT—Michigan City Housing Auth., Court House, soon lets contract, 7 story, row housing, management and maintenance bldg., sewers, water mains, electric distr. sys., paving, Proj. 19-1, $2,250,000. Beine-Hall & Currant, 607 Broadway, Gary, archts. CD 7/3.

## HEAVY CONSTRUCTION—LB & CA

▲ **OHIO** — State Hy. Dpt., Columbus, Zone 15, Bids opened 12/9.

O.—**Sutton & Stewart, Inc.** and **Hatcher Bros., Inc.**, 841 National Rd., Bridgeport, O., LB $1,355,579, est. $1,374,200 (5 bidders) Type T-71 and structure 5.43 mi. SR 7-(14.03014.39) (17.71-21.12) F-617(7) Village of Clarington, Proj 641, Monroe Co.; LB $298,805, est. $349,200 (10 bidders) Type T-35 on B-119 and structure 0.726 mi. SR 148-(24.63-25.19) Proj. 645, Belmont Co.;

O.—**The Koski Constr. Co.**, 242 Center St., Ashtabula, O., LB $800,052, est. $828,100 (3 bidders) Type T-35 and structure 4.112 mi. SR 534, (17.02-21.40) S-1146(1) City of Geneva, Proj. 632, Ashtabula Co.;

O.—**Visintine & Co.** and **Complete General Constr. Co.**, 1315 Edgehill Rd., Columbus, O., LB $6,989,000, est. $7,209,200 (3 bidders) Type T-71 and structures 5.948 mi. SR 1-25.33 ACI-1105 (4) City of Columbus, Proj. 635, Franklin Co.;

O.—**C. F. Replogle Co.**, P.O. Box 308, Circleville, O., LB $3,318,224, est. $3,768,000 (6 bidders) Type T-71 and structures 3.559 mi. USR 25-13.84 ACI-1101 (17) Villages of Evendale, Glendale, Sharonville, Proj. 636, Hamilton Co.;

O.—**S. J. Groves & Sons Co.**, 500 Wesley Temple Bldg., Minneapolis, Minn., LB $2,084,592, est. $2,133,800 (9 bidders) Type T-71 and structures 3.031 mi. SR 44-1.70 F-388 (10) S-1012(8), Proj. 638, Lake Co.;

O.—**The W. J. Johnson Constr. Co. & Assocs.**, P.O. Box 6668, Bexley Station, Columbus, O., LB $1,644,362, est. $1,704,500 (3 bidders) Type T-71 and structure 1.303 mi. SR 4-19.73, U-681(19), City of Dayton, Proj. 642, Montgomery Co.;

O.—**Wander & Mason, Inc.**, 1028 Proprietors Rd., Worthington, O., LB $4,027,457, est. $4,935,700 (11 bidders) Type T-71 and structures 2.985 mi. USR 62-20.83, ACI-1093(5) FU 0978(5), City of Canton, Proj. 644, Stark Co. CD 12/1.

**Shaw-Comer Constr. Co.**, 7016 Euclid Ave., Cleveland 3, O., LB $766,649 (4 bidders), Lakewood Heights Blvd. overpass, CLEVELAND, O. Comrs. Cuyahoga Co., County Admin. Bldg., 1219 Ontario St., Cleveland 13, O. Bids Dec. 8. CD 11/11.

**A. Gaudio & Sons**, 23500 Lakeland Blvd., Cleveland 23, O., CA $568,453, Babbitt Rd. Sanitary Sewer, EUCLID, O. City of Euclid, City Hall, 585 E. 222 St., Cleveland 23, O. CD 10/6, under LB.

▲ **D. W. Winkelman & Co.**, 205 Harrison St., Syracuse, N. Y., LB $1,147,936, est. $1,101,824 (2 bidders) apron and taxiway paving, Clinton County Air Force Base, ENG-46-022-59-12, WILMINGTON, O. U. S. Eng., 237 4th Ave., Huntington 18, W. Va. Bids Dec. 11. CD 11/13.

▲† **Centex Constr. Co.**, 4606 Greenville Ave., Dallas 6, Tex., LB $3,992,192, 250 unit Capehart HOUSING Bunker Hill Air Force Base, Inv. 12-621-59-22, PERU, IND. Procurement Office, Bunker Hill Air Force Base, Ind. Bids Dec. 9, CD 12/1.

**ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs.,

**Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill. CA $777,655 storm sewer 1.73 mi. on Lake St. extens. Congress St. Expressway, Cook Co. CD 11/28, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

**Chatham Paving Co.**, 8542 S. State St., Chicago, Il., CA $1,259,385 concrete base course 2.31 mi. and 3-span bridge, on Ill 55 (Cermak Rd.) Cook Co. Bids Oct. 31, awarded Dec. 10. CD 10/15.

**DeLaval Steam Turbine Co.**, 1225 S. Harlem Ave., Forest Park, Ill., LB $713,000 (2 bidders) supply two 800 MGD steam turbine pumps, Maifair Water Pumping Station, CHICAGO, ILL. Dpt. Purchases, City of Chicago, City Hall, Chicago 2, Ill. Dick Van Gorp, 320 N. Clark St., Chicago 10, Ill., ch. engr. Bids 12/9. CD 1/30/57.

**Paschen Bros. Constr. Co.**, 2739 N. Elston Ave., Chicago, IH. CA $807,000, coal handling equip. in West-Southwest Tr. Works., CHICAGO, ILL. Metropolitan Sanitary Dist. of Chicago, 100 E. Erie St., Chicago, Ill. CD 12/10, under LB.

## BUILDINGS—LB & CA

▲ **Repp & Mundt, Inc.**, 1604 Cottage Ave., Columbus, Ind., CA Est. $1,750,000, general contract 2 story, 260 x 440 ft. and 120 x 220 ft. rein.-con., steel MFG. FACTORY and WAREHOUSE add'n., COLUMBUS, IND. Cummins Engine Co., Inc., Fifth and California Sts., Columbus, Ind. Bids Nov. 20. CD 11/6.

▲ **Power Constr. Co.**, 125 S. Marion St., Oak Park, Ill., LB $1,499,607 (10 bidders), general contract 45-classroom, Donald E. Gavit JUNIOR-SENIOR HIGH SCHOOL, 175 St. and Northcote Ave., HAMMOND, IND. Hammond Public Schools, 5935 Hohman St., Hammond, Ind. Bids Dec. 8, CD 11/18.

▲ **Gust K. Newberg Constr. Co.**, 2040 N. Ashland Ave., Chicago, Ill., LB $12,347,000 (4 bidders) general contract, EXPOSITION HALL, Lakefront, CHICAGO, ILL. Metropolitan Fair & Exposition Authority, 208 S. LaSalle St., Chicago, IH. Bids Dec. 12, CD 11/14, under unclassified.

**American Bridge Div., U. S. Steel Corp.**, 208 S. La Salle St., Chicago, Ill., LB $2,337,000 (3 bidders) structural steel contract EXPOSITION HALL (Chicago, Ill.);

**Dell Corp.**, 9003 Waukegan St., Morton Grove, Ill., LB $1,058,000 (17 bidders) heating and pipe-fitting contract EXPOSITION HALL (Chicago, Ill.);

**Anderson & Litwack Co.**, 530 Hyde Park, Hillside, Ill., LB $1,337,000 (8 bidders) ventilation contract EXPOSITION HALL (Chicago, Ill.);

**Great Lakes Plumbing & Heating Co.**, 4521 Diversey St., Chicago, Ill., LB $725,000 (13 bidders) plumbing, outside water and sewer work contract EXPOSITION HALL (Chicago, Ill.);

**Fischback, Moore & Morrissey, Inc.**, 173 W. Madison St., Chicago, Ill. LB $2,900,000 (13 bidders) electrical contract EXPOSITION HALL (Chicago, IH.)

▲ **Wm. E. Schweitzer & Co.**, 2207 Dodge Ave., Evanston, Ill., CA $4,349,000, CHRIST COMMUNITY HOSPITAL, incl. macam. and concrete paving, curbs, gutters. 95th St. and Kilbourne Ave., OAK LAWN, ILL. Evangelical Hospital, 5121 S. Morgan St., Chicago, Ill. CD 12/10, under LB.

**Cerling Constr. Co.**, 370 Oaklawn St., Elmhurst, Ill. CA $850,000, part 1 and 2 story PHYSICAL EDUCATION BLDG., incl. 60 x 90 gymnasium, 28 x 75 swim pool, club room, ELMHURST, ILL. Central Y.M.C.A., 19 S. LaSalle St., Chicago 3, Ill. E. B. White, 19 S. LaSalle St., Chicago 3, Ill., archt. Ekroth Mortarano & Akroth, 5315 W. Devon Ave., Chicago, Ill., engr. Awarded Dec. 8. CD 11/13/56.

**Klarich Constr. Co.**, 9009 S. Western Ave., Chicago, Ill., CA $500,000, BOWLING ALLEY, RESTAURANT, 4200 42 W. 95th St., OAK LAWN, ILL Oak Lawn Bowl Fox, Inc., 9009 S. Western Ave., Chicago, Ill. Ralph Ernst, 9009 S. Western Ave., Chicago, Ill., archt.

# WEST OF MISSISSIPPI

## HEAVY CONSTRUCTION—BA

**Mo., St. Louis**—AIRPORT IMPRVS.—BA 1/13—City, Bd. P. Service, 304 City Hall, Zone 3, resurf. apron pavements and taxiways in vicinity of Old Terminal Bldg. at Lambert-St. Louis Municipal Airport. $85,750. Horner & Shifrin, 1221 Locust St., Zone 3, engrs. CD 10/31.

## HEAVY CONSTRUCTION—LB & CA

▲ **NEBRASKA**—State Dpt. Rds. & Irrigation, Lincoln, Bids opened 12/11.

**Neb.—Peter Kiewit Sons' Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb. LB $78,013, gravel-detour pavement, bridge guard rail 0.1 mi. Bennington-Omaha Rd., Proj. S-187 (7) Douglas Co.; LB $763,898, detour pavement, culverts, 0.7 mi. Lincoln-Omaha Rd., Proj. I-880-9 (31) Douglas, Co.;

**Neb.—Missouri Valley Constr. Co.**, W. 2nd St., Grand Island, Neb. LB $158,588, gravel-detour, culverts, granular subbase course and soil-aggreg. bit concrete, b. conc. 4.9 mi. Hordville-Polk Rd., Proj. S-285 (4) Hamilton and Polk Counties; LB $256,069, armor coat, bit. sand S. C. 11.2 mi. Stapleton-Thedford Rd., Proj. S-80 (9) Logan Co.; LB $191,832, pavement, culverts, guard rail, granular fill and shoulder constr. 0.5 mi. Bridgeport South Rd., Proj. S-376 (5) Morrill Co.;

**Neb.—Arnold Swanson Co.**, Hy. 6 and 281, Hastings, Neb., LB $295,051, grading, detour, guard rail, subgrade, reconstr., gran. subbase course, soil aggreg. bit.


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CLUTCHES

concrete and shoulder constr., b. conc. 8.9 mi. Arapahoe South Rd., Furnas Co. Proj. S-368 (4); LB $299,-715, grading, granular subbase course and crushed limerock bit. concrete, b. conc. 6.5 mi. Wayside-Chadron Rd., Proj. F-435 (7) Dawes Co.;

Neb.—Abel Constr. Co., 1815 Y St., Lincoln, Neb. LB $426,307, grading, gravel-detour, subgrade reconstr., granular fill, granular subbase course soil-aggreg. bit. concrete and shoulder constr., b. conc. 9.5 mi. Swedeburg-Ashland, Ithaca South, Projs. S-134 (4) S-134 (5) S-801 (1) Saunders Co.;

Neb.—Knight Bros., Chapman, Neb. LB $230,519. armor coat, bit. sand surf. course 7.9 mi. Greeley-O'Neill Rd., Proj. F-913 (11), Wheeler Co. CD 12/3.

▲ TEXAS—State Hy. Comn., Austin, Bids opened 12/10,

Tex.—Brown & Root, Inc., P.O. Box 3, Houston, Tex., LB $1,152,061, widen, etc., 13.220 mi. Hy. US 90, Proj. U 512 (26) Harris Co.; LB $799,128, grade, etc., 13.719 mi. Hy. US 183, Proj. F 183 (10) Gonzales and Dewitt Counties, CD 11/19; LB $172,644, hot mix b. conc. 10.963 mi. Hy. US 90, Proj. C 271-6&7-11&34, Harris Co., CD 11/25;

Tex.—Cage Bros., 6959 San Pedro Ave., San Antonio, Tex., LB $394,414, grade, etc., 14.441 mi. Hy. FM 669, Proj. S 534 (2), Borden Co.;

Tex.—R. B. Smith, Inc., 3702 Glen Haven St., Houston, Tex., LB $580,374, grade, etc., 10.178 mi. Hy. U.S. 69, Proj. F 355 (11), Hardin Co.;

Tex.—Henry L. Stafford, Box 1047, Lubbock, Tex., LB $1,054,513, grade, etc., 40.264 mi. Hy. U.S. 60 and Spur 270, Proj. F 639 (9), Palmer and Castro Counties;

Tex.—W. L. Barnes Contr. & N. L. Larson, Box 9008, Austin, Tex., LB $1,087,671, grade, etc., 3.756 mi. Hy. Loop 293, U.S. 183 and S.H. 71, Proj. R Rd-F-V-18 (1), Travis Co.;

Tex.—Bushman Constr. Co., 3706 Broadway, Kansas City, Mo., LB $1,724,543, grade, etc., 3.448 mi. Hy. IH 10, Proj. I 10-8 (12) 897, Orange Co.;

Tex.—Austin Bridge Co., P. O. Box 1590, Dallas, Tex. LB $3,761,512, grade, etc. 6.837 mi. Hy. IH 20, Proj. I 20-2 (16) 274, Taylor Co.;

Tex.—L. K. & J. A. Long & John T. Leisle, P. O. Box 183, McKinney and Bailey, Tex. LB $311,863. grade, etc. 5.809 mi. Hy. FM 2450, 156, 455 and 1173. Proj. S 2258 (1) & S 2259 (1), Denton Co., all foregoing. CD 11/25.

▲† C. H. Leavell & Co., 1900 Wyoming Ave., El Paso, Tex. LB $1,874,781 (Sched. A.). G.M. Range Training facilities, consisting 12 H-shaped barracks, 2 bldgs., etc., ENG-29-005-59-27, Fort Bliss, EL PASO, Tex. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Dec. 3. CD 10/28;

Farnsworth & Chambers, Inc., Box 74, Houston, Tex. LB $966,232, Sched. B, (El Paso, Tex.)

▲† Western Paving Constr. Co., 5105 Washington St., Denver, Colo., and Eagle Constr. Co., Loveland, Colo. CA $6,300,742, est. $5,376,457, powerhouse and switchyard for 2nd power plant at Fort Peck Dam, Valley Co., ENG-32-015-59-4, MONTANA. U. S. Eng., Garrison, Riverdale, N. D. Bids Nov. 20, awarded Dec. 9. CD 12/9, under LB.

## BUILDINGS—LB & CA

▲ The Austin Co., 18112 Euclid St., Cleveland, O., CA Est. $1,500,000, LABORATORY PLANT addns., incl. 40,000 sq. ft. pharmaceutical bldg. addn.; 15,000 sq. ft. chemical plant expansion; steam capacity boiler plant to be tripled; install 250,000 gal. sprinkler sys. reservoir, expansion of roadways and parking, CHARLES CITY, IOWA, Dr. Salsbury's Laboratories, Charles City, Iowa, CD 12/11.

Commonwealth Theaters, Inc., 215 W. 18th St., Kansas City, Mo., rejected bids Nov. 19, 1 unit, 42,900 sq. ft. steel frame, brick, block SHOPPING CENTER incl. parking for 590 Cars, COLUMBIA, MO. LB $422,900. Will re-advertise. CD 12/3, under LB.

Geo. L. Cousins Contg. Co., 875 N. Skinker Bldg., St. Louis 5, Mo., CA $506,950, est. $600,000, 3 story, ground floor 73 x 116 ft. precast concrete blocks, steel MEDICAL CENTER, Florissant Rd. south of Chambers Rd., DELLWOOD (P.O. ST. LOUIS 21 P.O.), MO. North Roads Medical Bldg., Inc., c/o Eric W. Smith, Jr. and Robert Entzereth, archts., 8230 Forsyth Blvd., Clayton 24, Mo. Bids Dec. 2. CD 12/10, under LB.

Sharp Brothers, 1014 E. 19th, Kansas City, Mo., LB $609,643, general constr. 4 story, bsmnt., 60,000 sq. ft. 11 x 115 ft. concrete block, brick OFFICE, 34th and Broadway, KANSAS CITY, MO. Old Security Life Ins. Co., 1800 McGee, Kansas City, Mo. Bids Dec. 5. CD 12/2.

Bank Building & Equipment Corp. of America, 1130 Hampton Ave., St. Louis 10, Mo. CA Est. $600,000 design and constract 1 story, bsmnt., 56 x 110 ft. contemporary style BANK on 284 ft. front site, south-side Delmar Blvd. in 6600 Block, incl. parking area for 80 cars, UNIVERSITY CITY, MO. Delmar Bank of University City, 6605 Delmar Blvd., University City, Mo. CD 4/25/55.

H. F. Campbell Constr. Co., 9301 Michigan St., Detroit, Mich. CA $600,000 PLANT for Motor Truck Division, PLANT for Farm Equipment Division, and SALES OFFICE, LITTLE ROCK, ARK. International Harvester Co., 812 E. 2 Little Rock, Ark. CD 8/12/57.

Rorick Constr. Co., 905 S. 20th St., Omaha, Neb., CA $803,440, general constr. 3 unit North HIGH SCHOOL addn., OMAHA, NEB. Bd. Educ., 39th and Davenport Sts., Omaha, Neb. Awarded Dec. 8. CD 12/10, under LB.

Dickmann-Pickens-Bond, 3712 W. Okmulgee St., Muskogee, Okla., CA $323,100, Y.M.C.A. and Y.W.C.A. bldgs., MUSKOGEE, OKLA. Young Men's Christian Assn., Bd. Directors, Muskogee, Okla. Awarded Dec. 5. CD 12/10, under LB.

Frank B. Schoeneman, Builder, Coit Rd., Dallas, Tex. Owner Builds. $550,000, 60 APARTMENT UNITS, ARLINGTON, TEX. CD 11/10.

El Paso Natural Gas Co., El Paso Natural Gas Bldg., El Pasp, Tex. Owner Builds. $647,000, DEHYDRATION PLANT expansion, BIG SPRING, TEX. CD 12/3.

American Constr. Co., 2128 Welch St., Houston, Tex. CA Approx. $400,000. rein.-con. solid masonry walls Riverside TELEPHONE EXCHANGE, HOUSTON, TEX. Southwestern Bell Telephone Co., 1121 Capitol St., Houston, Tex. CD 1/7.

Gilbert Southbrook Builders, 5512 La Branch St., Houston, Tex. Owner Builds. $480,000, 40 DWELLINGS, Greens Bayou, about 12½ mi. from HOUSTON, TEX. CD 11/14.

▲ G. E. Bass, 2715 N. State St., Jackson, Miss. CA $2,000,000. cost plus-fixed fee, constr. 14 story thin wall constr. aluminum and glass panels, concrete frame and floors, etc. GULF OFFICE BLDG., MIDLAND, TEX. R. E. Dumas Milner, 3691 Canton Rd., Jackson, Miss. (Correction—contractor's name). CD 11/11, under CA.

A. Brown, 628 Dooly Bldg., Salt Lake City, Utah, LB $505,465, est. $500,000, HIGH SCHOOL addn., alterations, COKEVILLE, WYO. School Dist. No. 5, Lincoln Co., Cokeville, Wyo. Bids Dec. 4, CD 11/26.

# FAR WEST

## BUILDINGS—BA

Wash., Seattle—SCHOOL—BA 1/8—Highline School Dist. 401, 253 S. 152 St., 2-level 149 x 191 ft. and 72 x 120 ft. masonry South Angle Lake Elementary School. $500,000. Plans deposit $40. Extended date. Bassetti & Morse, Tower Bldg., Seattle, Zone 1, archts. CD 12/8.

## HEAVY CONSTRUCTION—LB & CA

IDAHO—State Hy. Dpt., Boise,

Lonnie E. Smith Constr. Co., Twin Falls, Idaho, CA $521,601, constr. concrete underpass, 2 concrete bridges, 4 concrete overpasses interstate 15W and 80N, Cassia Co., Bids Dec. 2, Awarded Dec. 9, CD 12/9, under LB.

▲ IDAHO—State Hy. Dpt., Boise, Bids opened 12/9,

Morrison-Knudsen Co., Inc., 319 Broadway Ave., Boise, Idaho, and Duffy Reed, Twin Falls, Idaho (joint bid), LB $1,279,274, constr. 4-lane divided roadway, 26 ft. concrete overpass, 316 ft. underpass and plantmix bit. surf. 3.077 mi. Interstate No. 80N and plantmix bit. surf. 0.18 mi. U. S. 95 and U. S. 80, Payette Co., CD 11/19.

▲ IDAHO—State Hy. Dpt., Boise,

James Reed, 779 S. 2 E St., Salt Lake City, Utah, CA $1,281,999, constr. roadway, plantmix bit. surf., drainage structures and 3 concrete underpasses on 7.813 mi. U. S. Interstate 15 and sealcoating 7.341 mi., Jefferson Co., Bids Dec. 2, awarded Dec. 9, CD 12/9, under LB.

▲† H. K. Ferguson Co., 120 Montgomery St., San Francisco, Calif., CA Est. $1,000,000, modify and add to utilities, structures and cooling loop in material testing reactor in engineering test area at National Reactor Testing station, Idaho Falls, ARCO, IDAHO, Atomic Energy Comm., Idaho Operations Office, Idaho Falls, Idaho, CD 12/21/56.

▲† R. A. Heintz Constr. Co., 211 N. E. Columbia Blvd., Portland, Ore., LB $2,242,215, est. $3,247,-208, (17 bidders), embankment protection for Spokane, Portland & Seattle Railway as part of Ice Harbor Dam project, Pasco, CIVENG-45-164-59-15, WASHINGTON, U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 11, CD 11/7.

† Jensen-Rasmussen & Co., Sunnyside, Wash. and B-E-C-K Constructors, 3647 Stone Way, Seattle 3, Wash., LB $724,124, est. $748,794 (7 bidders), 150-man READINESS CREW BLDG., Larson Air Force Base, Inv. 59-6, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 9. CD 11/21.

▲ OREGON—Hy. Comn., Sy. Bldgs., Salem, Bids opened 12/9,

Ore.—Warren Northwest Inc., Box 5072, Portland, Ore., LB $1,407,104, (15 bidders) paving 11.25 mi. Lebanon Road-Halsey Interchange section of relocated Pacific Hy., FAIP I-5-4(26)216, Linn Co.;

Ore.—Babler Bros., 4617 S. E. Milwaukie Ave., Portland, Ore. LB $148,348 (4 bidders) grading, paving 1.02 mi. FAP F-123(16), Deschutes Co.

† Sierra Constr. Co., P. O. Box 983, Merced, Calif. LB $815,237, est. $988,051 (8 bidders), road relocation, 5 mi. from Stoney Creek to Ridgeville around north side of Trinity Dam Reservoir, Trinity River Div., Central Valley Proj., Spec. 5119, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lewiston, Calif. Bids Dec. 9. CD 10/31.

Martin Bros., Inc., 2525 Concord Ave., Concord, Calif. LB $671,340 (6 bidders), constr. nearly 17 mi. pipe line for 2nd unit irrigation distr. sys. for delivery of Solano Proj. water, FAIRFIELD, CALIF. Solano Irrigation Dist., Fairfield, Calif.

▲ Stolte, Inc., 9967 San Fernando Rd., Los Angeles, Calif. CA $1,208,018. constr. Claremont Storm Drain Bond Issue Proj. 22, Pomona and Claremont, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 21. CD 11/28, under LB.

† W. J. Nicholson Co., Inc., P. O. Box 390-A, Santa Clara, Calif. LB $883,388 (10 bidders), test chamber and equipment bldg. for 3.5 hypersonic wind tunnel. IFB A-166 MOFFETT FIELD, CALIF. National Aeronautics & Space Admin., Ames Research Center, Procurement Office, Moffett Field, Calif. Bids Dec. 2. CD 11/20.

† U. S. Eng., 1209 8th St., Sacramento, Calif. cancelled bids to have been opened Dec. 23, hydrant fueling sys. (MATS) incl. 8 tank pumphouse, rehabilitating existing 3 tank pumphouse, new piping pits and hydrant outlets in existing MATS apron, Spec. 2461, ENG-04-167-59-25, TRAVIS AIR FORCE BASE, CALIF. Est $800,-000. Will re-advertise. CD 11/26.

## BUILDINGS—LB & CA

M. Morrin & Sons, 473 W. 2nd St., Ogden, Utah, LB $586,270. 1st phase PHYSICAL SCIENCE BLDG., State University of Applied Sciences, LOGAN, UTAH. Utah State Bldg. Bd., Glen R. Swenson, dir., 419 State Capitol, Salt Lake City, Utah. Bids Dec. 9. CD 12/2.

▲ Kemp Bros. & George K. Thompson, 8750 Mettler St., Los Angeles, Calif., LB $2,074,000 (joint venture) (4 bidders), Sunny Hills HIGH SCHOOL, FULLERTON, CALIF. Fullerton Union High Scrool Dist., 201 E. Chapman Ave., Fullerton, Calif. Bids Dec. 10. CD 11/28.

Ernest W. Hahn, Inc., 219 S. Hawthorne Blvd., Hawthorne, Calif. LB $814,900, est. $700,000 (9 bidders), 2 story HOSPITAL, 1437 Lomita Blvd., HARBOR CITY, CALIF. Harbor Osteopathic Hospital, Inc., 25916 W. Western Ave., Los Angeles, Calif. Bids Dec. 8. CD 12/8.

▲ James Stewart Co., Box 1389, 3911 Pacific Hy., San Diego, Calif. CA $1,352,598. const. LABORATORY BLDG. UNIT 3, LA JOLLA, CALIF. University of California at Scripps, La Jolla, Calif. Bids Nov. 13. CD 11/17, under LB.

▲ W. H. Christensen, 17814 Parthenia St., Northridge, Calif. CA $2,300,000. Portola JUNIOR HIGH SCHOOL, Ventura and Reseda Blvds., Tarzanna, LOS ANGELES, CALIF. Bd. Educ., 1425 S. Sah Pedro St., Los Angeles, Calif. Bids Nov. 21. CD 11/28, under LB.

▲ Ekelin & Small Co., P. O. Box 8, Salinas, Calif. CA $2,169,954. 18,000 sq. ft. Type I and Type III constr. HIGH SCHOOL, incl. gym, 5 shops, swimming pool, North Salinas, SALINAS, CALIF. Salinas Union High School Dist, c/o supt., 431 W. Alisal St., Salinas, Calif. Bids Sept. 30. CD 10/7, under LB.

# CANADA

## BUILDINGS—BA

B. C., Prince George—STORE—BA 12/30—Rupert's Land Trading Co., 79 Main St., Winnipeg, Man., rein.-con. Hudson's Bay store addn. $400,000. Trelle A. Morrow, Prince George, archt.

▲ B. C., Vancouver—GARAGE—BA 12/31—Hudson's Bay Co., Georgia and Granville Sts., 650-car, concrete, steel parking garage, incl. four level inclined ramp structure, 600 block Seymour St. $1,500,000. Wade, Stockdill & Armour, 475 Howe St., archts.

## HEAVY CONSTRUCTION—LB & CA

▲ Mannix Ltd., 737 8th Ave. W., Calgary, Alta., LB $4,220,092, resurf. Runway 02-20, strengthening, wid'n. 200 ft., 14,000 ft. extens. Runway 11-29, incl. taxiways, aprons, lighting facilities, related work at airport, NAMAO, ALTA. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 10/29/57.

▲ BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

Dawson, Wade & Co., Ltd., 775 Clark Dr., Vancouver, B. C., LB $1,090,929 (16 bidders) constr. 6.06 mi. Fraser River-Abbotsford section 1 Trans-Canada Hy. in Chilliwack Electoral Dist. F. T. Brown, Parliament Bldgs., Victoria, B. C., engr. CD 10/30/46.

Canadian Vickers Ltd., Maisonneuve, Montreal, Que. CA $951,575, manufacture and installation supersonic nozzle and Jack Station sub-assemblies for high speed wind tunnel, at National Aeronautical Establishment, Royal Canadian Air Force Base, UPLANDS, ONT. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. CD 10/1, under LB.

Charles Duranceau Ltee, 2645 J. Hertel St., Montreal, Que., LB $655,288 (24 bidders) transit shed, Sections 62-65, Montreal Harbor, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids Dec. 4. CD 11/21.

## BUILDINGS—LB & CA

F. O. White Contg. Co., Ltd., 661 Richards St., Vancouver, B. C., CA $500,000, 3 story, concrete, frame HOTEL, 2636 E. Hastings St., VANCOUVER, B. C. Atlas Developments Ltd., 661 Richard St., Vancouver, B. C. A. F. Debickl, c/o 661 Richards St., Vancouver, B. C., archt.

Luney Bros. & Hamilton Ltd., 825 Bay St., Victoria, B. C. CA $664,894 concrete HIGH SCHOOL, Esquimalt, VICTORIA, B. C. School Dist. No. 61, Victoria, B. C. Bids Nov. 13, awarded Dec. 3. CD 11/27, under LB.

McKay-Cocker Constr. Ltd., 294 Dundas St., London, Ont., CA $731,000 (9 bidders) 3 story, bsmnt., 64 x 97 ft. TELEPHONE BLDG. exten., LONDON, ONT. Bell Telephone Co. of Canada, 393 University Ave., Toronto, Ont. Marani & Morris, 1259 Bay St., Toronto, Ont., archts. Awarded Dec. 5.

Damien Boileau Ltee., 705 Beaumont Ave., Montreal, Que., CA Est. $500,000, 2 story, bsmnt., T-shaped, concrete, brick, frame SCHOOL and RECREATION HALL, St. Michel Blvd., MONTREAL, QUE. Montreal Catholic School Comn., 3737 Sherbrooke St. E., Montreal, Que. Paul M. Lemieux, 1846 Dorchester St. W., Montreal, Que., archts. Beaulieu, Trudeau & Assocs., 6650 Darlington Ave., Montreal, Que., engrs. Awarded Dec. 3.

Odeon Constr. Co. Ltd., 6555 St. Lawrence Blvd., Montreal, Que., Owner Builds, $700,000, 55 brick, stone HOUSES, ST. ROSE EAST, QUE.

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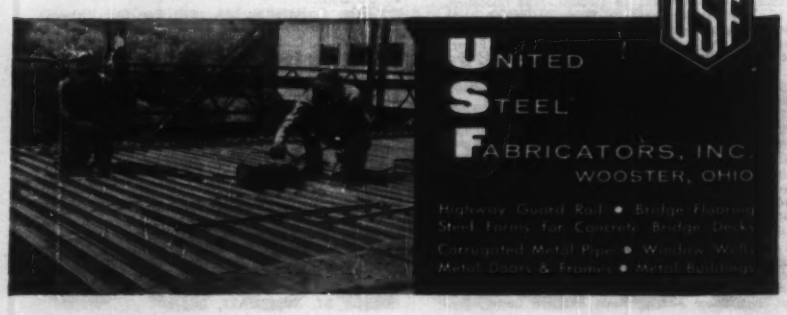



▲ **Roseview** Investment Corp., c/o Edouard W. Tremblay, archt., 3480 Cote des Neiges Rd., Montreal, Que., Owner Builds. $1,777,777, 18 three story, block frame, dry wall, brick veneer, APARTMENTS, ST. VINCENT DE PAUL, QUE.

## LATIN AMERICA

### HEAVY CONSTRUCTION—LB & CA

▲ **GUATEMALA**—Office of Bienes Nacionales Licitaciones y Asuntos Alemanes, Guatemala City, Guatemala—**Thompson Cornwall, Inc.**, Chrysler Bldg., New York, N. Y., U. S. A., LB $2,499,625, surf. treatment base course and bit. surf. tr. from Patzicia to Mexican Border, Project 28, for Bureau P. Rds., Dpt. Commerce, Inter-American Hy. Office, Wash., D. C., U. S. A. CD 11/20;

Guatemala—**Divalso**, Guatemala City, Guatemala, LB $2,113,775, preservative treatment same project (Guatemala).

# PROPOSED PROJECTS

## WATER SUPPLY

▲ **Alaska, Juneau**—City, City hall, voted bonds Nov. 25, imprv. supply and distr. system, $1,500,000. Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consult. engrs. CD 8/2/57.

▲ **O., Oberlin**—City, City Hall, water plant and reservoir, $1,700,000. Burgess & Niple, 2015 W. 5 Ave., Columbus, consult. engrs.

▲ **Tenn., Knoxville**—East Knoxville Utility Dist., 4905 Straw Plains Pike, water distr. dist. $1,400,000. A. E. Bost, 408 Clinch Ave., engr.

## SEWERS, WASTE DISPOSAL

▲ **Iowa, Mason City**—City, City Hall, sewage disposal plant and sewer main extens. $2,000,000.

▲ **Ky., Lexington**—City, City Hall, Proj. No. Ky. 15-P-3013, imprv. collection sys., sewage treatment plant addn. Cane Run Outfall. $4,800,000.

▲ **Mich., Detroit**—City, City Hall, $30,000,000 bond election Feb. 16, three year sewer construction program to start 1961.

▲ **Mo., Independence**—City, City Hall, voted $1,750,000 bonds Nov. 25 sewer trunk lines; defeated $1,750,000 bonds, sewerage sys. imprvs. Midwest Consulting Engineers & Architects, 4233 Blue Ridge Blvd., Kansas City 33, Mo., consult. engrs. CD 10/1.

▲ **Neb., Omaha**—City, City Hall, 19th and Farnam Sts., South Omaha Treatment plant northwest of Mandan Park, $7,750,000, Henningson, Durham, Richardson, 2962 Harney St., consult. engrs.; North Interceptor Sewer extending between Bridge and Grace Sts. $2,500,000, Kirkham, Michael & Assoc., 508 S. 19th St., Omaha, consult. engrs. CD 11/10.

▲ **N. J., Camden**—City, City Hall, garbage and refuse incinerator. $3,000,000. To go ahead 1959.

## STREETS AND ROADS

▲ **DELAWARE**—State Dpt. Hys., Dover,
**New Castle Co.**—2.5 mi. Christiana River Interchange, incl. relocating Christiana River and 12 bridges $20,000,000. To go ahead Spring 1959. K. E. Greiner Co., 1106 N. Charles, Baltimore, Md., consult engr. Moran, Proctor, Mueser & Rutledge, 415 Madison Ave., New York, N. Y., directing test borings.

▲ **Ill., Belleville**—Bd. Supervs. St. Clair Co., Court House, 1959 highway constr. program, incl. 5.5 mi. bit. resurf. State St., East St. Louis, grading, resurf. 1 mi. Marybelle Ave., 71 St. to Goetz Dr., East St. Louis, grading, imprv. S. 74 St., Rt. 460 to West Main St., Belleville; bridge approaches Emerald Mound School Rd., on Jack's Run Rd., Eller Rd. at I. C. R.R. grading, surf. Rt. 159 5.7 mi., drainage facilities SAR No. 29, Brooklyn, Ill. $1,297,000. Devereux H. Murphy, co. supt. hys.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
**Rehoboth-Swansea**—hy. and bridge Interstate Rte. 95E, 200 ft. E. Madison St., Rehoboth to 300 ft. W. Walker St., Swansea, distance 1.1 mi. FA 1-95E (5). $1,500,000.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany 1,
**New York Co.**—elevated vehicular crosstown road along Canal and Broome Sts., from Miller (West Side) Hy. to Manhattan and Williamsburg Bridges, 1st Section, Avenue of Americas to Bowery; 2nd Section, West St. to 6th Ave.; 3rd Section, Bowery at Broome St. $46,729,000. Madigan-Hyland, 28-04 41st Ave., Long Island City, engrs. CD 1/20/55, under Manhattan Boro, as owner.

## AIRPORTS

▲† **Pa., Johnsville**—INTEGRATED SYSTEM FACILITIES—Dpt. Navy, Phila. Naval Base, Phila., plans by Von Storch & Burkavage, archts.-consult. engrs., 117 S. 17th St., Phila. and Waverly, integrated sys. facilities at Naval Air Depot. $21,000,000 (no appropriation). CD 1/20/54.

† **Tex., Waco**—HOUSING—Procurement Office, Jas. Connally Air Force Base, Waco, rehabilitation, 500 Wherry Housing units. $500,000-$1,500,000. CD 8/21/56.

▲ **Wash., Seattle**—TERMINAL—Port of Seattle, Bell St. Terminal, Zone 1, terminal expansion to provide 12 jet positions and 2-level operation at Seattle-Tacoma Airport. $4,000,000. Work to begin in 1960. G. T. Treadwell, ch. engr.

(Continued on page 110)

The Mathews barrel, containing all working parts of the hydrant, is readily removed for inspection or repair by simply unscrewing it from the elbow and withdrawing it through the protection case.

# I want you to see for yourself how the Mathews replaceable barrel is a real community asset

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And these additional quality features help keep the Mathews at the head of the line:

- Compression-type valve opens against water pressure—a positive leakproof construction
- Operating thread cannot be bent
- Head revolves 360° just by loosening bolts
- Nozzle sections are changeable
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- Bell, mechanical-joint or flange-type connections
- O-Ring seal furnished when specified

MATHEWS HYDRANTS—by **R. D. WOOD COMPANY**

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Rockwood shopping center of Fred Meyer, Inc., Portland, Oregon, is 216'x313'-6" in size, with structural framing of cantilevered glulam girders which provide 44'-9" bays. Heavy timber decking is placed over natural finish glulam purlins spaced at 8'.
Architects: Jensen and Gilham, Portland, Oregon.
Andersen & Westfall, Portland, were general contractors.

**JOB DATA:** **Exterior walls:** stone, painted concrete, ceramic tile, asbestos panels, glass. **Interior walls:** gypsum board, glass. **Heating:** gas fired forced air. **Ventilation:** full air conditioning. **Lighting:** Fluorescent fixtures. **Volume:** 1,151,172 cubic feet. **Floor area:** 67,716 square feet. **Cost:** approximately 10% below prevailing costs of similar structures in this area.

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(Continued from page 108)

▲ **Man., Flin Flon**—AIRPORT—Dpt. Transport, Hunter Bldg., Ottawa, Ont., airport. $2,000,000. CD 10/24/49.

## AMERICANS ABROAD

▲ **Japan, Tokyo**—POWER STATION—Tokyo Electric Power Co., Tokyo, thermal power station, Tokyo Bay, near Yokosuka, $61,000,000. International General Electric Co., 150 E. 42 St., New York 17, N. Y., U.S.A., will supply first 265,000 kw. turbine unit. Ebasco Services, Inc., 2 Rector St., New York, N. Y., U.S.A., consult. engr.

## PUBLIC BUILDINGS

▲ **Calif., Los Angeles**—PHYSICAL EDUCATION FACILITIES—State Div. Architecture, 1120 N. St., Sacramento, outdoor physical educ. facilities, Los Angeles State College of Applied Arts & Sciences, State Dpt. Educ. $1,104,700. CD 7/25/57.

▲ **Calif., San Fernando**—SPEECH-DRAMA, etc.—State Div. Architecture, 1120 N. St., Sacramento, speech-drama bldg. $2,503,600; cafeteria, $1,557,000, San Fernando State College, State Dpt. Educ.

▲ **Colo., Denver** — ALARM CENTER — City and Denver Co., City and Co. Bldg., combined repair and alarm center, $2,215,000.

▲ **Colo., Denver**—JAIL—City and Denver Co., City and Co. Bldg., county jail addn., E. Smith Rd. $2,000,000. Constr. in 1960.

▲ **Conn., New Britain**—SCHOOL—State P. Wks. Dpt., 165 Capitol Ave., plans by Henry Ludorf, 96 Elm St., Hartford, steel, rein.-con. brick vocational-technical school, Slater Rd. $3,200,000. Walter J. Douglas Assocs., 1009 Farmington Ave., West Hartford, consult. engrs. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford, mech. engrs. CD 8/19.

▲ **Ill., Chicago**—SCHOOLS—Bd. Educ., 228 N. LaSalle St., plans by Furst, Maher & McGrew, 626 Grove St., Evanston, school, $1,250,000, CD 5/23; plans by Loewenberg & Loewenberg, 111 W. Monroe St. and S. A. Lichtmann, 134 S. LaSalle St., Zone 3, Hess School, $725,000. CD 3/10.

▲ **Ill., Chicago**—HOSPITAL—Bd. Comrs. Cook Co., County Bldg., Zone 2, plans by Rich. W. Prendergast, 30 N. Dearborn St., 4 story, bsmnt., L-shaped, rein.-con. hospital, incl. air conditioning. $3,500,000. CD 6/11/57.

▲† **Ill., Danville**—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D. C., modernizing hospital. $4,247,000 (no appropriation).

▲ **Ind., Gary**—LIBRARY—City, City Hall, 2 story, 69,675 sq. ft. library, 5th and Adams Sts., $2,000,000. CD 1/8/56.

▲ **Kan., Russell**—SCHOOL—Rural High School Dist. No. 7, voted $1,800,000 bonds Nov. 20, high school. Edward M. Fuller, 701 W. 14th Ave., North Kansas City, Mo., archt. CD 11/12.

▲† **Mass., Bedford** — HOSPITAL IMPRVS. — Veterans Admin., Munitions Bldg., Wash., D. C., modernization program, Phase IV, Veterans Hospital. $1,007,000.

▲ **Mass., Lawrence** — HOUSING FOR ELDERLY — City Housing Auth., 90 Broadway, plans by Thomas J. Pearson Assoc., 351 Essex St., housing for elderly, 3-sites. $2,000,000.

▲ **Minn., Stillwater**—SCHOOL—Bd. Educ. voted $2,432,000 bonds Dec. 1, high school, $2,000,000. CD 11/13.

▲† **Miss., Biloxi** — HOSPITAL IMPRVS. — Veterans Admin., Munitions Bldg., Wash., D. C., modernization program, Phase III, Veterans Hospital. $1,873,000.

**Miss., Cleveland** — STUDENT HOUSING — State Bldg. Comn., Woolfolk Bldg., Jackson, plans by Biggs, Weier & Chandler, 336 Meadowbrook Rd., Jackson, two 2 story rein.-con. structures, etc., student housing, Delta State College. $925,000.

▲ **Miss., Natchez**—SCHOOLS—Natchez Separate School Dist., plans by E. L. Malvaney & Assocs., Millsaps Bldg., Box 941, Jackson, and B. W. Martin, 710 Main St., Natchez, 60,000 sq. ft. brick, steel, frame, concrete, etc. Junior High School, $900,000. CD 11/28; plans by James L. Canizarro, First National Bank Bldg., Jackson, and John Turner, 317 Main St., Natchez, Northside Elementary School, $500,000; Southside Elementary School, $500,000; plans by R. W. Naef, 844 North State St., Jackson, Senior High School. $1,000,000.

▲ **N. J., Paterson**—PARKING GARAGE—Paterson Parking Auth., City Hall, parking garage Main, Fair, Paterson and Ellison Sts. $4,000,000-$7,000,000. Tippetts-Abbett-McCarthy-Stratton, 62 W. 47 St., New York, N. Y., consult., engrs. CD 8/6.

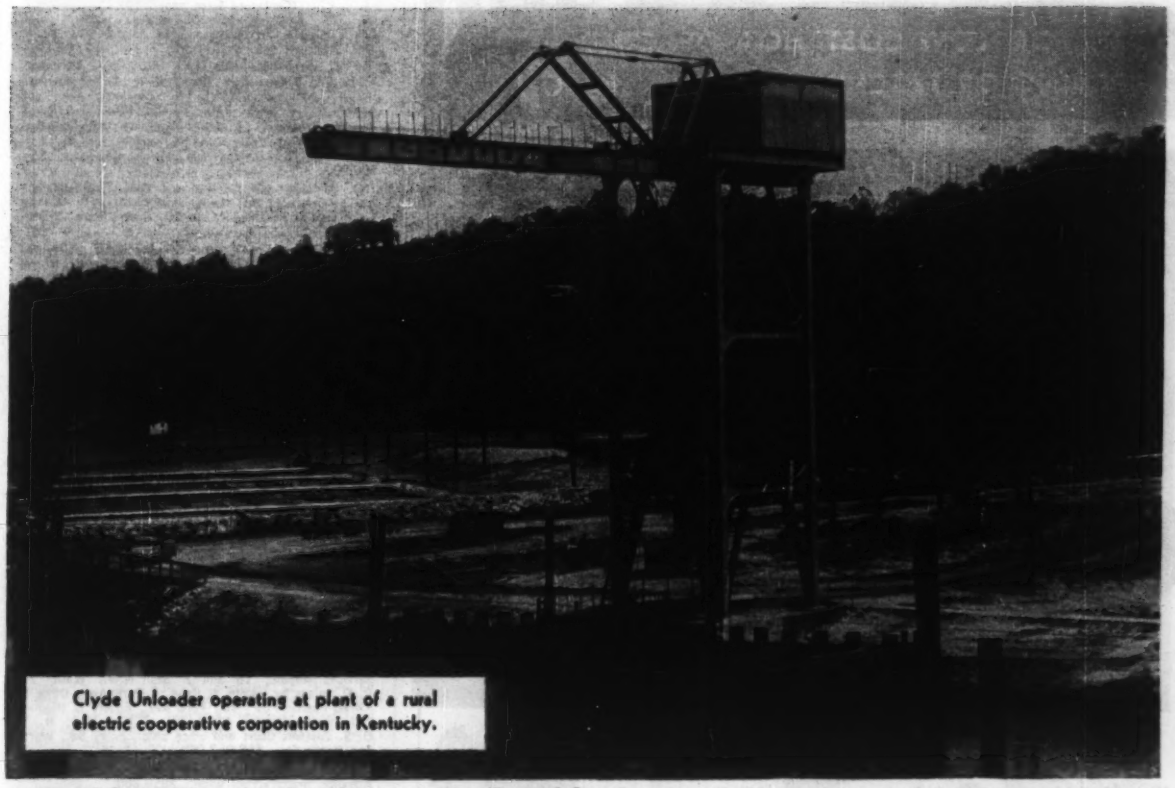
▲ **N. J., Scotch Plains**—SCHOOL—Bd. Educ., Scotch Plains Twp., approved referendum on project and bonds Nov. 25, addns. to Shakamaxon School, Evergreen School, LaGrande School and new school, $2,385,000. CD 2/5/57.

▲ **N. J., Stratford**—SCHOOL—Central Camden Co. Regional High School Bd. Educ., plans by F. Herbert Radey, 8th and Market Sts., Camden, Regional Junior-Senior High School. $1,400,000. Bond election Dec. 9.

▲ **N. J., Wayne**—SCHOOL—Bd. Educ., Township of Wayne, Mt. View, voted $1,993,000 bonds Nov. 24, Junior High School, $1,510,000, LaFayette School addn., $270,750, and Mt. View Schools addn. $212,250. Emil Schmidlin, 586 Central Ave., East Orange, archt. CD 10/28.

▲ **New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 80, Baisley and Merrick Blvds., Queens Boro. $2,200,000.

(Continued on page 112)



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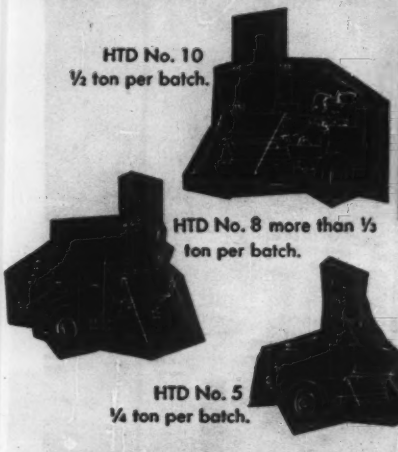


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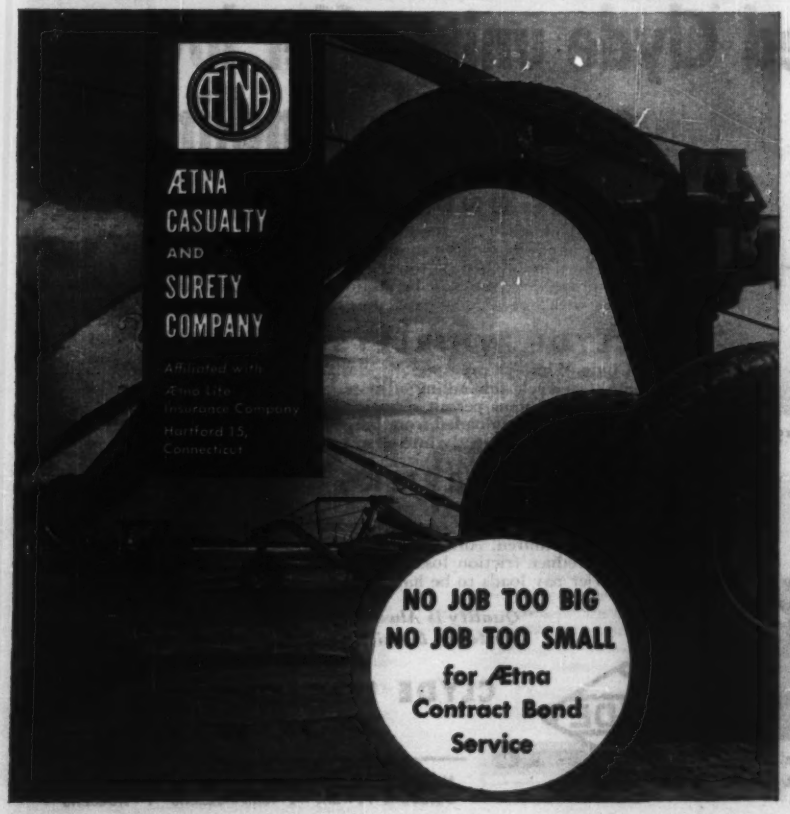


(Continued from page 110)

▲ N. Y., Brooklyn—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 305, Nostrand Ave. and Monroe St. $2,500,000.

▲ N. Y., Brooklyn—HOSPITAL, etc.—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Cumberland Hospital addns., imprvs., N. Portland Ave. and Auburn Pl., Proj. HO-230. $7,182,500. CD 9/9.

▲ N. Y., Brooklyn—LAUNDRY—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, laundry for city hospital, 567-97 Kingston Ave., Proj. Ho. 144, $5,500,000. CD 5/24/55.

N. Y., Jamaica—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 48 addn., 108th Ave. and 155th St., Queens Boro. $800,000. CD 11/15/48.

▲ N. Y., Levittown—SCHOOLS—Bd. Educ., defeated referendum Dec. 6, addns. to 5 elementary schools and constr. 2 schools. $6,086,690. Kelly & Gruzen, 80 5th Ave., New York, N. Y., archts.-engrs. CD 11/21.

▲ N. Y., Lewiston—SCHOOL—Lewiston-Porter Bd. Educ., Creek Rd. Plans by Wm. C. Lurkey, 3901 Main, Buffalo, elementary school. $1,250,000. Proposal will be submitted to voters in February.

† N. Y., Montrose — ATTENDANTS' QUARTERS — Veterans Admin., Munitions Bldg., Wash., D. C., attendants' quarters, Veterans Hospital. $877,000.

▲ N. Y., New York—NURSES HOME—Dpt. P. Wks., Municipal Bldg., Zone 7, nurses home at Metropolitan Hospital, 99 E. 99th St. and Franklin D. Roosevelt Dr., Proj. HO-59A. $3,870,191. CD 7/23.

▲ N. Y., New York—AQUATIC BIRD HOUSE—Dpt. Parks, Arsenal Bldg., Zone 21, aquatic bird house at Bronx Zoo, New York Zoological Society Proj. $825,000. CD 6/5.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 154, E. 138th St. and Brook Ave., Bronx Boro. $2,500,000.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, addn., modernization P. S. 57, E. 115th St. and Third Ave., Manhattan Boro. $1,600,000.

▲† N. Y., New York—CUSTOMS COURT, etc.—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., plans by Jacobs & Kahn, 2 Park Ave., Office of Alfred Easton Poor, 400 Park Ave., Eggers & Higgins, 787 United Nations Plaza, all of New York, N. Y. U. S. Customs Court and office bldg., Foley Sq., Worth and Duane Sts. $68,062,000. CD 11/26.

Pa., Annville—SCHOOL—Annville-Cleona Jt. School Dist., Annville, grade school addn. $850,000.

Pa., Biglerville—SCHOOL—Upper Adams Jt. School Dist., Biglerville, high school addns., alterations. $900,000.

▲ Pa., Freeport—SCHOOL—Freeport Area Jt. School Dist., plans by Walter Rittenhouse, Kittanning, Senior High School (Proj. 819-575). $1,489,952. Bids about July 15. CD 3/8/56.

▲ Pa., Littlestown—SCHOOL—Littlestown Jt. School Dist., high school bldg. $1,852,500.

▲ Pa., Phila.—SCIENCE—General State Auth., 18th and Herr Sts., Harrisburg and Temple University, Broad and Montgomery Aves. Plans by Nolen & Swinburne, 1601 Locust St., science and classroom bldg., GSA 1104. $4,000,000. Severud-Elstad-Krueger, 415 Lexington Ave., New York, N. Y., engrs. Bids in 2 weeks. CD 2/12.

▲ Tex., Angleton—SCHOOL—Angleton Ind. School Dist. plans by Duryea, Elkins & Greeson, 1917 Westheimer Rd., Houston, high school plant. $1,250,000. CD 12/23.

Tex., Austin—CHEMISTRY—Bd. Regents, University of Texas, Main Admin. Bldg., plans by Preston M. Geren, 1607 Fort Worth National Bldg., Fort Worth, 4 story, concrete frame, masonry, concrete block chemistry bldg. addn. $923,000. CD 8/5/57.

† Va., Kecoughtan—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D. C., hospital modernization, Phase III, administrative wing. $918,200.

▲ Wash., Pullman—DORMITORIES, etc.—Washington State College. Plans by Lea, Pearson & Richards, 240 S. Stadium Way, Tacoma, two 6 story men's dormitories, $2,500,000; plans by Walker, McGough & Trogdon, Great Northwest Life Ins. Bldg., Spokane, Wash., residence hall for 300 women, $1,000,000.

▲ Wash., Seattle—SCHOOL—School Dist. No. 1, 815 4 Ave. N. Plans by J. W. Maloney, Central Bldg., Zone 4, Junior-Senior High School, Henderson St. and Seward Park Ave., Rainier Beach Dist. $3,300,000. CD 11/20.

▲ Wyo., Casper — SCHOOLS, etc. — Natrona Co. High School Dist. and School Dist. No. 2, voted $1,500,000 bonds Dec. 2, science bldg., Casper College, and schools. CD 10/23.

Ont., Toronto—GARAGE—City, City Hall, garage for City Works Dpt., north area of city. $800,000.

▲ Que., Westmount—SCHOOL—Westmount Protestant School Comn., 10 Academy Rd., plans by deBelle & White, 5925 Monkland Ave., Montreal, high school, Westmount Athletic Grounds, St. Catherine St. W. $2,500,000.

## COMMERCIAL BUILDINGS

▲ Colo., Denver—SCHOOL PLANT—United Air Lines, Stapleton Airfield, plans by Edwin A. Francis, 218 E. Speer Blvd., school plant consisting 2 bldgs., one 2½ story building and smaller bldg., swimming pool, tennis courts and parking lot for 115 cars, Montview

Blvd., E. 21, Quebec and Olive Sts. $1,000,000. CD 5/13.

▲ **Ill., Belvidere**—HOSPITAL—St. Joseph Hospital, Belvidere. Plans by F. O. Wolfenberger & Assocs., 501 Houston St., Manhattan, Kan., brick, concrete, etc. hospital, $2,400,000. Bids about March or April.

▲ **Ill., Chicago**—APARTMENT—Morris R. DeWoskin, c/o Executive House, 71 E. Wacker Dr., multi-story apartment, north bank of Chicago River, between State and Dearborn Sts. $2,000,000.

**Ill., Glenview**—SHOPPING CENTER—Milwaukee—Golf Development Corp., 236 N. Clark St., Chicago, plans by Walter W. Decherrie, 180 W. Washington St., Chicago, Golf Mill Shopping Center, incl. 75 unit, parking area, bounded by Gold Rd., Milwaukee Ave., Greenwood Rd. and Church St. $14,000,000.

▲ **Ill., Harwood Heights**—BOWLING CENTER—Holiday Bowl Corp., c/o L. E. Aronson, 100 W. Monroe St., 64 lane bowling center, incl. club rooms, rest rooms, nursery, Harlem Ave. and Lawrence St. $4,000,000. Constr. early 1959.

▲ **Ill., Melrose Park**—BOWLING ALLEY—Mages Sports Arenas, Inc., sub. Mages Sporting Goods Co., 277 W. Madison St., Chicago, plans by Barancik, Conte & Assocs., N. Michigan Ave., Chicago, bowling alley, $1,000,000.

▲ **Ill., River Grove**—BOWLING ALLEY—Mages Sports Arenas, Inc., sub. Mages Sporting Goods Co., 227 W. Madison St., Chicago, plans by Barancik, Conte & Assocs., 332 N. Michigan Ave., Chicago, bowling alley, River Rd. and Belmont Ave. $1,000,000.

▲ **Ind., Indianapolis**—MOTEL—Lippman & Assoc., 3939 Meadows Dr., 2 story L shaped motel. $1,500,000.

▲ **Ind., Indianapolis**—BANK AND OFFICE—Merchants National Bank & Trust Co., 11 S. Meridian St., multi-story bank and office bldg., Washington and Virginia. $1,000,000. Constr. in 1959.

▲ **Ky., Louisville**—BANK—Liberty National Bank & Trust Co., 2nd and Market Sts., Zone 2, plans by Walter Wagner and Jas. H. Potts, Fincastle Bldg. 3rd and Broadway, Zone 2, 6 story bank bldg., 406-416 W. Jefferson St. and 6 story glass facade extending from Liberty St. to Jefferson St. $2,500,000. Bank Building & Equip. Corp., 1130 Hampton, St. Louis, Mo., consult. engrs. CD 1/23.

▲ **La., New Orleans**—SHOPPING CENTER—Shelby Constr. Co., Inc., 136 S. Derbigny St. Plans by Colvert, Lowery & Assn., 809 Chartress St., 450,000 sq. ft. steel frame, rein.-con., concrete block and brick Lakeside shopping center, Veterans Hy. and Causeway Blvd. $1,000,000.

▲ **Mass., Natick**—DEPARTMENT STORE, etc.—Owner, c/o Tekton Assoc., Inc., archt., 229 W. Central St., 5 story, 28,000 sq. ft. department store and 100,000 sq. ft. office bldg., incl. parking for 150 cars, Walnut and Main Sts. $3,000,000. Constr. 1959.

▲ **Mass., Worcester**—SHOPPING CENTER, etc.—Borman Realty Corp., c/o Domain & Salk, archts., 340 Main St., Country Club Development, incl. shopping center, apartment and residential sections on 105 acres, Lincoln St. $3,000,000. Constr. 1959.

▲ **Minn., Minneapolis**—APARTMENT—Community Development, Inc., 9th-Chester Bldg., Cleveland, O., 209 Co-operative apartment units, Olson Hy. between Emerson and Humboldt Aves. North. $2,250,000. Constr. 1959.

▲ **Minn., St. Peter**—SCIENCE—Gustavus Adolphus College, plans by Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, 2 story Nobel Hall of Science. $1,000,000. Constr. 1960.

▲ **Mo., Raytown**—MOTEL, etc.—Owner, c/o Leo E. Aronson, 1 N. LaSalle St., Chicago, Ill., plans by Kivett, Myers & McCallum, 1016 Baltimore, Kansas City, Mo., and Sidney Y. Morris & Assocs., 134 N. LaSalle, Chicago, Ill. 2 story, 100 unit contemporary style motel, incl. 60x100 ft. swimming pool, restaurant, parking for 100 cars. $2,000,000.

▲ **N. H., Nashua**—SHOPPING CENTER, etc.—R. C. Corp., c/o Clyde Everett Equipment Co., Cambridge St., Burlington, Mass., preliminary survey and plans by Charles H. Lench, Jr., Duxbury, 30 acres shopping center and residential development, former J. D. Gardiner Estates, Rte. 3. $1,000,000. CD 9/23.

▲ **N. J., New Vernon**—HOUSES—Old Army Road Corp., c/o Country Properties, Rte. 202, Bernardsville, 70 houses, on 233 acre tract off Rt. 202. $3,000,000.

▲ **N. Y., Buffalo**—HOUSING DEVELOPMENT—Howard Builders, 3143 Walden Ave., Depew, N. Y., 110 single family housing development, French Rd. and Geo. Urban Blvd. $2,000,000. Constr. early spring.

▲ **N. Y., Hamburg** — SHOPPING CENTER — Wanakah Plaza, Inc., Mr. Roxie Gian, c/o Stanley Podd, archt., Tupper and Delaware Ave., Buffalo, 125,000 sq. ft. shopping center, incl. 30,000 sq. ft. supermarket plus 30 other stores. $10,000,000. CD 1/30/56.

**N. Y., Jackson Heights** — APARTMENT, etc. — Harris Realty Co., 9427 37th Ave., plans by B. C. Gallo, 409 Chelsea St., East Boston, Mass., 4 story, masonry apartment and store bldg., 37th Ave. and 95th St. $800,000. Constr. 1959.

▲ **N. Y., New York**—DORMITORY, etc.—New York University, 100 Washington Square, Zone 12. Plans by Marcel Breuer & Assocs., 201 E. 57 St., men's and women's dormitory, $3,100,000; dining hall, $1,000,000, on University Heights Campus.

▲ **N. Y., Tarrytown**—INN—Hilton Hotels Corp., 401 Seventh Ave., New York, Zone 1, 200 room Inn on 10 acre tract on Broadway and Thruway, Exit No. 9. $2,000,000.


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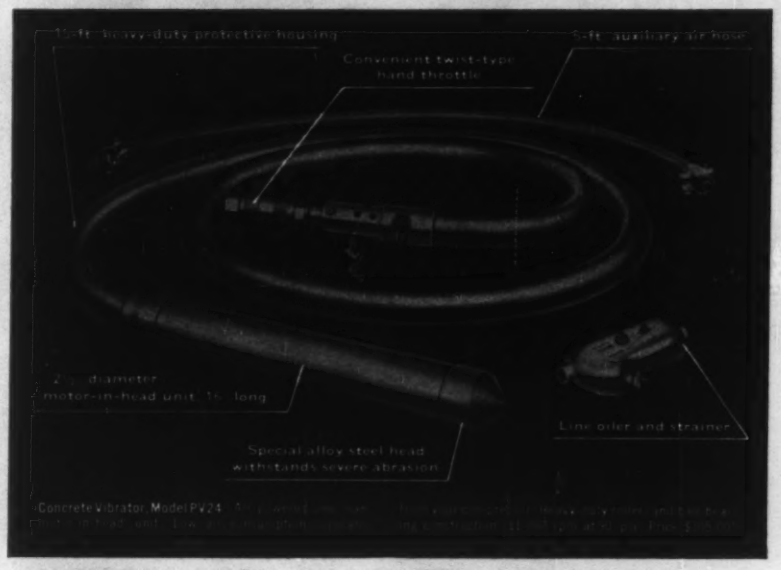
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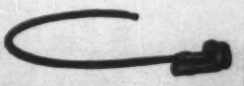

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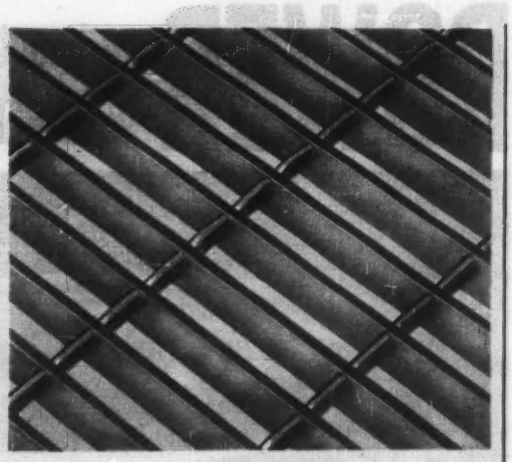

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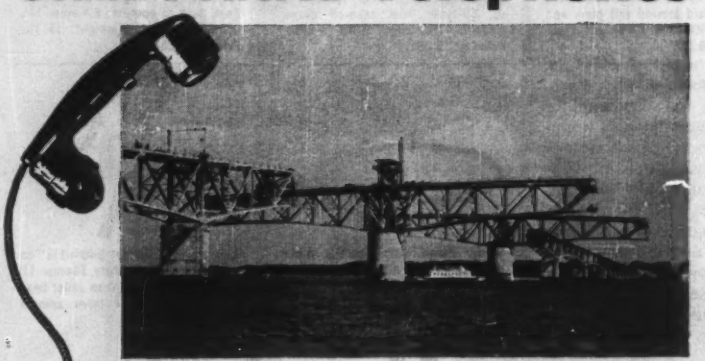

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▲ O., Chagrin Falls—APARTMENTS—Arthur Mills & Assocs., 2555 Kemper Rd., Cleveland, Zone 20. Plans by Arthur M. Hemlock, 10010 Euclid Ave., Cleveland, Zone 6, ten garden-type 8 suite apartments, Solon Rd. $1,000,000.

▲ O., Middletown—DEPARTMENT STORE—Manuel D. Mayerson Realty Co., Provident Bldg., Cincinnati, McAlpins Department Store addn. to Middletown Shopping Center. $1,500,000. Constr. in 1959.

▲ Ore., Portland—HOSPITAL—Physicians & Surgeons Hospital, 1927 NW Lovejoy St., plans by Roald, Schmeer & Harrington, Portland Trust Bldg., hospital addn. $2,000,000. Bids in March.

▲ Ore., Portland — APARTMENT — Terwilliger Plaza, Inc., 1530 W.W. Taylor St., plans by Dougan, Heims & Thompson, Royal Bldg., 338-unit retirement apartment. $3,833,440.

▲ Pa., Fort Washington—SCHOOL BLDGS.—Germantown Academy, Schoolslane and Green St., Phila., school bldgs., New site. $3,000,000. CD 4/22, under Pa., Germantown.

Tenn., Knoxville—MOTEL—Jean Monday Realty Co., 311 W. Vine Ave., 106 unit motel. $850,000. Wallace E. Johnson, lessee (president Holiday Inns).

▲ Tex., Houston—SHOPPING CENTER, etc.—L. Bernard Kerce, 1945 W. Gray St., shopping center, $2,500,000; hard paved area and auto center, $80,000; site earthwork and drainage, $50,000, Berry Rd. and Eastex Freeway.

▲ Tex., Houston—SHOPPING CENTER—Frank W. Sharp Constr. Co., 1120 W. 43 St., shopping center, Jensen Dr., $1,000,000.

▲ Alta., Edmonton—SHOPPING CENTER—Kensington Shopping Center Ltd., c/o Gordon & Mangold, archts., 10123 112th St., 85,000 sq. ft. shopping center, 7½ acre northwest region of city. $2,000,000.

Ont., Ottawa—BIOLOGY—University of Ottawa, Laurier Ave. E., plans by Jean Serge Lefort, 86 Greenfield Ave. 3½ story, bsmnt., 95 x 137 ft. steel, cement block, limestone Biology bldg. $800,000. CD 12/9.

▲ Ont., Ottawa—LAW—SOCIAL SERVICES—AUDITORIUM—University of Ottawa, Laurier Ave. E. Plans by Jean Serge Lefort, 86 Greenfield Ave., 4 story, bsmnt., 50 x 245 ft. steel, cement block, limestone combined law, social services and auditorium bldg. concrete fdns. $1,000,000. CD 4/5/56.

▲ Ont., Peterborough—HOTEL—Empress Hotel, 131 Charlotte St., Cyril Fuller, prop., plans by John Venters, Empress Hotel, 131 Charlotte St., 6 story, 100 rooms hotel reconstr. $1,000,000. CD 5/7.

▲ Ont., Port Arthur—HOMES—Boyd & Sohiman Ltd., 218 Ray Blvd., 225 homes, Forest Park Development incl. water, sewer mains, paved streets and curbs, etc. $3,000,000.

▲ Que., Montreal—APARTMENTS—Island Constr. Co. Ltd., c/o Thibodeau & Thibodeau, archts., 940 Cote de Liesse Rd., two 3 story, bsmnt., 65 x 160 ft. rein.-con. frame, stone, 70-unit apartment blocks, Marlboro Dr. $1,000,000.

▲ Que., Montreal—SCIENCE—Loyola College, 7174 Sherbrooke St. W., plans by Franco Consiglio, 1201 Guy St., science bldg. $2,000,000.

▲ Que., Montreal—APARTMENT—Owner, c/o Ben-Ami Shulman, archt., 5174 Cote des Neiges Rd., 6 story, bsmnt., rein.-con. brick, stone, 104 suite apartment block, Fielding, Mayfair and Coronation Aves., $1,000,000.

## INDUSTRIAL BUILDINGS

▲ Calif., Saugus—WIND TUNNEL—Lockheed Aircraft Corp., Calif. Div., 2627 N. Hollywood Blvd., Burbank, supersonic wind tunnel and high altitude environmental test facilities, 1st section, Lockheed Research Center. $5,000,000.

▲ Fla., Port Everglades—PLANT—Florida Power & Light Co., Ingraham Bldg., 25 SE 2 Ave., Miami, power plant addn. $50,000,000.

▲ Ky., Louisville—ROLLING MILLS, etc.—Cochran Foil Corp. (subsidiary of Anaconda Co.) 1430 S. 13th St., 2 rolling mills and plant addn. $2,000,000.

▲ Minn., Roseville (P.O. St. Paul)—TERMINAL—Glendenning Motorways, Inc., 820 Hampden Ave., terminal bldg. on tract west of Fairview Ave. and north of County Road C. $1,250,000.

▲ N. C., Enka—MILL—American Enka Corp., 530 5th Ave., New York, N. Y., 6 story nylon mill. $7,500,000.

Penn., La Follette—SAW MILL—Koppers Co., Inc., Koppers Bldg., Pittsburgh, Pa. saw mill, 50,000 acres. $500,000.

▲ Tex., Brownsville—PLANT—Union Carbide Corp., 30 E. 42 St., New York, N. Y., plant addns. $2,000,000.

▲ Wis., Two Rivers—FACTORY, etc.—Hamilton Mfg. Co., 1316 18 St., 3 story, 150 x 150 ft. factory addn., 1 story, 66 x 141 ft. office addn. $1,000,000.

## UNCLASSIFIED

▲ Conn., Westport—MARINA—Town, marina, $1,000,000.

▲ Kentucky—PIPELINE—Ashland Oil & Refining, 4510 Algonquin, Louisville, 75 mi. oil pipe line from Green Co. to Louisville. $2,000,000.

Missouri—TELEPHONE LINES—Triangle Telephone Co., Dix, telephone sys. extens. imprvs., incl. 508 mi. new lines, 5 mi. rebuilding in Maries, Miller, Phelps and Pulaski Counties, Proj. Missouri 883A. $800,000. Fred Finley, Lamar, Mo., consult. engr. CD 12/5.

▲ Texas—GAS GATHERING LINES—Transcontinental Gas Pipeline Corp., 3100 Travis St., Houston, 34 mi. 20 in. and 24 in. gas gathering lines, Robstown area. $1,020,000. CD 1/12/50.

# Bids—Low Bids—Contracts—Second Section

## NEW ENGLAND

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 30 Massachusetts  Dec. 31 New Hampshire
January 5 Connecticut

### HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy. Comn., State Office Bldg., Augusta, **H. E. Sargent, Inc.**, Stillwater, Me., CA **$1,628,591** (3 bidders), grading, drainage, grav. base 5.393 mi. City of Augusta and Town of Sidney, FAP No. I-95-6(6)105, Kennebec Co. Bids Dec. 10. CD 11/25.

**NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, Bids opened 12/4,
**Arthur Whitcomb Constr. Co.**, 725 Main St., Keene, N. H., LB **$654,808** (4 bidders) hot b. conc. 4.09 mi. and 2 rein.-con. box culverts, U. S. 202, Peterboro, Hancock and Bennington, Hillsboro Co. CD 11/26.

▲ **VERMONT**—State Hy. Dpt., State House, Montpelier, **Olson Constr. Co.**, 56 Northfield St., Montpelier, Vt., CA **$1,055,727**, est. approx. $1,100,000, hy. and bridge, U. S. Rte. 2, Milton and South Hero, F-028-1 (1). Bids Dec. 5. CD 12/9, under LB.

**VERMONT**—State Dpt. Hys., State House, Montpelier, **S. V. Rossi Constr. Co., Inc.**, 49 McDermott Ave., Torrington, Conn., LB **$432,033**, est. $400,000, hy. and 2 bridges, Vt. U. S. Rte. 7, Manchester, Dorset, F-019-2 (5). CD 12/1.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 12/16, **Campanella & Cardi Constr. Co.**, 780 Jefferson Blvd., Warwick, R. I. LB **$2,387,882**, est. $3,051,892 constr. section Western Expressway, incl. 4 bridges FA Proj. U-3601 (1), Fall River. CD 12/2.

† **Davison Constr. Co., Inc.**, 1306A Elm St., Manchester, N. H., LB **$812,000**, est. $974,800, constr. Airmen's Service Club and Electronics Shop, Westover Air Force Base, ENG-19-016-59-54, CHICOPEE FALLS, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Dec. 11. CD 12/1.

▲ **CONNECTICUT**—State Hy. Dpt., 165 Capitol Ave., Hartford, Bids opened 12/15,
**Savin Brothers, Inc.**, Cottage Grove Rd., Bloomfield, Conn., LB **$3,871,720**, grading, drainage, concrete paving relocation Route 8, incl. ramps, side roads and temporary connections to existing road at Thomaston Dam Proj., Proj. 140-108, Litchfield and Thomaston. CD 11/26.

### BUILDINGS—LB & CA

▲ **J. R. Cianchette & Sons**, South Main St., Bangor, Me., Separate Contracts, **$2,000,000**, SHOPPING CENTER, Hammond St., PITTSFIELD, ME. Henneberg & Henneberg, 42 Mt. Auburn St., Cambridge, Mass., archts. CD 12/17.

▲ **Aberthaw Constr. Co.**, 60 State St., Boston, Mass. CA Est. **$1,000,000**, SHOPPING CENTER, Jct. Rte. 128 and Southeast Expressway, BRAINTREE, MASS.; Federated Stores, Inc., and William Filene's Sons Co., 426 Washington St., Boston, Mass. Cabot, Cabot & Forbes, 60 State St., Boston, Mass., engrs. CD 11/17.

**E. J. Rose & Son, Inc.**, 35 Trefton Dr., Braintree, Mass., CA Est. **$360,000**, BANK and OFFICE, Elm and Washington Sts., DEDHAM, MASS. Norfolk County Trust Co., 1319 Beacon St., Brookline, Mass. Bids Aug. 20. CD 8/15.

▲ **Stone & Webster Engineering Corp.**, 49 Federal St., Boston, Mass., CA **$20,000,000** (1st unit) design and construct 600,000 KW GENERATING PLANT, Brayton Point, South Somerset, SOMERSET, MASS. Montaup Electric Co., Riverside Ave., Somerset, Mass. CD 12/18.

▲ **Green Manor Estates, Inc.**, 681 Parker St., Manchester, Conn., Owner Builds, **$1,391,180**, 82 HOUSES, "Green Manorville" Taylor Rd., Scitico, Second Section, ENFIELD, CONN. CD 12/4.

**Montauk Park, Inc.**, Lake St., Vernon, Conn., Owner Builds, **$584,000**, 40 HOUSES, "Montauk Park" Lake St., VERNON, CONN.

## MIDDLE ATLANTIC

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 30 Maryland

STREETS AND ROADS

December 30 Maryland

### BUILDINGS—BA

▲ **Md., Rockville**—SCHOOL—BA 1/8—Montgomery Co. Bd. Educ., Rockville, Gaithersburg Junior High School, Gaithersburg, $1,250,000. Plans deposit $35. Frank Duane, 1726 M St. N.W., Wash., D. C., archt. CD 5/7.

▲ **Pa., Montrose**—SCHOOL—BA 1/20—Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, high school bldg. for Montrose Consolidated Jt. School Dist. $1,600,000. Plans deposit $50. Wolf & Hahn, 459 Hamilton St., Allentown, archts. CD 12/2/57.

### HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany, N. Y.—**Collins Bros., Inc.**, 12 Talmadge Pl., Mechanicville, N. Y., CA **$518,431**, reconstr. 2.75 mi. Rte. 157A near Thompson's Lake, Albany Co.;

N. Y.—**John Bros. Constr. Co., Inc.**, 37 Hall St., Binghamton, N. Y., CA **$1,156,511**, grading, drainage and structural work in preparation for future paving 1.89 mi. four-lane divided section Empire Stateway and 0.68 mi. access roads from Trim St. in vicinity of Corbettsville near Binghamton to Sunset Dr., Broome Co.;

N. Y.—**Rocell Constr. Co., Inc.**, 430 Van Voorhis Ave., Rochester, N. Y., CA **$782,496**, constr. 1.49 mi. section Central Ave. Arterial Rte. 98 in Salmanca, incl. new span over Great Valley Creek, Cattaraugus Co.;

N. Y.—**Lizza & Sons, Inc.**, 152 South St., Oyster Bay, N. Y., CA **$536,123**, drainage and misc. work at four locations along Jericho Turnpike (Rte. 25) in vicinity of Huntington Station, Coram, Middle Island and Jamesport, 2.41 mi. Suffolk Co. Grand total $2,993,562. Bids Oct. 30. CD 10/31, under LB.

▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany,
**Tully & DiNapoli, Inc. & Slattery Contg. Co., Inc.**, 127-50 Northern Blvd., Flushing, N. Y., CA **$8,398,372**, grading, drainage work for future paving Throgs Neck Expressway between Layton Ave. and Blair Ave. and Cross Bronx Expressway extension from Lafayette and East 177th St. to Blair Ave., 2.73 mi., Bronx Co. Bids Nov. 20. CD 11/21, under LB.

▲ **Nager Elec. Co., Inc.**, 426 Broadway, Brooklyn 11, N. Y., CA **$2,086,000**, modernization facilities, electrical distr. sys., Phase I and II, Watervliet Arsenal, ENG-30-075-59-9, WATERVLIET, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Nov. 12. CD 11/14, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton, Bids opened 12/16,
**I. B. Miller Contg. Co.**, 18-12 45 St., Long Island City, N. Y., LB **$1,585,195** (15 bidders), constr. 2 Interstate Rte. 78 bridges, Bloomsbury, Hunterdon Co. CD 12/1.

† **American Dredging Co.**, 12 S. 12th St., Phila., Pa. CA **$509,432**. dredging Schuylkill River, between mouth of Schuylkill River and Passayunk Ave. Bridge, ENG-36-109-59-27, PENNSYLVANIA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Nov. 20. CD 11/26, under LB.

▲ **John Matricciani, Inc.**, 408 S. Caroline St., Baltimore 31, Md., CA **$1,258,370**, imprv. Druid Lake Reservoir-Druid Hill Park, BALTIMORE, MD. City, Bureau Water Supply, 505 Municipal Bldg., Baltimore 2, Md. Bids Nov. 26. CD 12/2, under LB.

### BUILDINGS—LB & CA

† **Fischer Malik, Inc.**, 11 Moffitt Blvd., Bay Shore, N. Y., CA **$598,000**, MEMORIAL CHAPEL at U. S. Merchant Marine Academy, IFB B1-MA 59, KINGS POINT, N. Y. Div. Purchase & Sales, Maritime Admin., Wash., D. C. Bids Nov. 25. CD 12/2, under LB.

▲ **Braverman Constr. Co.**, 16 Court, Brooklyn, N. Y., CA **$692,380**, general constr. POWER HOUSE (Bldg. 11) for Bronx State Hospital for Dpt. Mental Hygiene, NEW YORK, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Nov. 26. CD 12/3, under LB
**Raisler Corp.**, 129 Amsterdam Ave., New York, N. Y. CA **$758,000**, heating for Power House (Bldg. 11) (New York, N. Y.).

**Glenwall Constr. Co.**, Roselle Park, N. J., CA **$823,890**, JUNIOR HIGH SCHOOL, Colonia section of Twp., WOODBRIDGE, N. J. Bd. Educ. of Woodbridge Twp., Woodbridge, N. J. CD 11/21, under LB.

**Frank H. Wilson Co.**, 125 Coulter Ave., Ardmore, Pa., CA **$796,980**, HIGH SCHOOL addns., BRISTOL, PA. Bristol Borough School Bd., Buckley St., Bristol, Pa. Bids Dec. 2, awarded Dec. 12. CD 12/10, under LB.

▲ **Spera Constr. Co.**, 1625 N. Front St., Harrisburg, Pa. CA **$1,100,000**. SHOPPING CENTER, 32nd St., CAMP HILL, PA. Morris A. Kravitz, Inc., 225 S. 15 St., Phila., Pa. Bids Dec. 3. CD 11/26.

▲ **F. K. Campion**, P. O. Box 23, 1101 Bethlehem Pike, Flourtown, Pa., CA **$2,164,000**, general constr. SENIOR HIGH SCHOOL, POTTSTOWN, PA. Pottstown Pa. School Dist., Pottstown, Pa. Bids Nov. 19. CD 11/26, under LB.

**R. S. Mowery & Sons, Inc.**, 527 Mooreland Ave., Box 367, Carlisle, Pa. CA **$562,464**, general constr. 2 ELEMENTARY SCHOOL BLDGS. (Burd Bldg. east end, Proj. 667-639) (Grayson Bldg. west end, Proj. 668-640) for Shippensburg Area Jt. School Dist., SHIPPENSBURG, PA. Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Pa. Bids Nov. 18, awarded Dec. 9. CD 11/25, under LB.

**John H. Wickersham**, P. O. Box 1216, Lancaster, Pa. CA **$898,000**, 1 and 2 story, brick, steel, concrete Perryville JUNIOR SENIOR HIGH SCHOOL addn., ELKTON, MD. Bd. Educ. Cecil Co., Elkton, Md. Bids Oct. 28. CD 11/6, under LB.

† **McCloskey & Co.**, 1620 Thompson St., Phila., Pa. LB **$741,000** substructure CAPITOL BLDG. East Front addn. and relocation utilities, WASH., D. C. Office of Architect of the Capitol, Wash., D. C. Roscoe De Witt, 2025 Cedar Spring, Dallas, Tex., archt. Alfred Easton Poor, 400 Park Ave., New York, N. Y., and Jessee M. Shelton, 96 Poplar St. N.W., Wash., D. C., assoc. archts. CD 10/26/48.

▲ **J. Roland Dashiell & Sons**, 647 S. Salisbury Blvd., Salisbury, Md., LB **$1,411,153** (7 bidders) constr. BOARD OF HEALTH BLDG., incl. 3½ story bldg. to house offices, laboratories and clinics, near Old State House, DOVER, DEL. State Bd. Health, Watson Memorial Blvd., Dover, Del. Bids Dec. 16. CD 11/16.

## SOUTH

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 30 Alabama

STREETS AND ROADS

December 30 Alabama, West Virginia

### BUILDINGS—BA

**N. C., Raleigh**—PHYSICAL EDUCATION—BA 1/22—North Carolina State College, Raleigh, physical educ. bldg. Plans deposit $100 general constr., $50 others. McMinn, Norfleet & Wicker, 2828 Lawndale Dr., Greensboro, archts.

### BUILDINGS—SLC

**Ky., Kosmosdale**—PLANT—Kosmos Portland Cement Co., Starks Bldg., Louisville, Zone 2, soon lets contract, steel skeleton, concrete slab, corrugated metal siding expansion to Portland Cement Plant. Over $700,000. Johnson & Johnson, Engineers-Archts., Inc., 111 W. Washington, Chicago, Ill., engr.

### HEAVY CONSTRUCTION—LB & CA

▲ **SOUTH CAROLINA**—State Hy. Dpt., Hotel Jefferson, Columbia,
**Diamond Constr. Co.**, Ocean Steamship Terminal, Savannah, Ga. CA **$2,111,517**, constr. 1,633 ft. 8 in. rein.-con. prestressed concrete, structural steel and treated timber bridge over Ashley River (North bound lane) U. S. Rte 17, west of Charleston, S. C. Docket No. 10.442, F.A. Pro. U-215 (3), Charleston Co. Bids Nov. 18. CD 11/25, under LB.

▲ **Blount Bros. Constr. Co.**, 79 Commerce, Montgomery, Ala. CA **$9,996,689**, airport terminal bldg., ATLANTA, GA. City, City Hall, Atlanta, Ga. Bids Dec. 9. CD 12/11, under LB.

**Atlanta International Raceway**, Mortgage, Guarantee Bldg., Atlanta, Ga., rejected bids Nov. 10, grading paving AUTO RACE TRACK, HAMPTON, GA. LB **$487,225**. CD 11/21, under LB.

**FLORIDA**—State Rd. Dpt., Tallahassee,
**H. E. Wolfe Constr. Co.**, Box 1361, St. Augustine, Fla., CA **$999,556**, 4-lane 8½ in. limerock base with Type I b. con. surf. course and binder course, drainage structures, one dual concrete slab deck bridge (each 100 ft. long) one dual concrete slab deck overpass (each 225 ft. long over S.A.L. R.R.) with prestressed concrete beams on prestressed piling etc. 3.002 mi. SR 200, Fed. Aid Proj. Nos. S-21 (1) and SG-21 (2). Jobs Nos. 26060-3109, 26060-3501 and 36040-3501, Marion and Alachua Counties. Bids Oct. 28, awarded Dec. 9. CD 10/31, under LB.

▲† **R. E. Clarson, Inc.**, 1930 13 Ave. N., St. Petersburg, Fla., CA **$2,062,153**, Complex 30 and Nose Installation Bldg. for Complex 30 at Cape Canaveral Missile Test Annex, incl. air-conditioned rein.-con. blockhouse and nose installation bldg., 2 revetments, 2 rein.-con. launching pads, 2 guardhouses and 2 electric substations, grading, paving and outside utilities, Patrick Air Force Base, COCOA, FLA. U. S. Eng., Box 4970, Jacksonville, Fla. CD 4/23.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,
**Ralph Myers Constr. Co.**, P. O. Box 230, Salem, Ind., CA **$2,436,312**, grade, drain 4.679 mi., incl. 2 structures Covington-Lexington Interstate 75, I 75-7(3), Grant Co. Bids Dec. 5. CD 12/10, under LB.

### BUILDINGS—LB & CA

▲ **Rea Constr. Co.**, Pineville Rd., Charlotte, N. C. CA **$1,558,775**, Central Y.M.C.A., CHARLOTTE, N. C. Young Men's Christian Assn., 330 S. Tryon St., Charlotte, N. C. Bids Dec. 4. CD 11/18.

**City Council & Bd. Comrs. Guilford Co.**, High Point, N. C., rejected bids Nov. 12, CITY-COUNTY OFFICE BLDG., HIGH POINT, N. C. LB **$662,409**, May readvertise next year. CD 11/19, under LB.

▲ **ORD Enterprises, Inc.**, Courtesy Rd., High Point, N. C. Separate Contracts. **$1,500,000** SHOPPING CENTER, GREENSBORO, N. C. George Connor, Jr., 233 Professional Bldg., High Point, N. C., archt.

**Aiken Federal Savings & Loan Assn.**, Aiken, S. C., rejected bids BANK-OFFICE, AIKEN, S. C. LB **$518,460**. CD 11/3, under LB.

**Chas. J. Craig Constr. Co.**, 1610 Westminster Dr., Columbia, S. C. LB **$414,858** 63,000 sq. ft. EQUIPMENT, SALES and SERVICE BLDG., COLUMBIA, S. C. Jeff Hunt Machinery Co., 1220 Huger St., Columbia, S. C. Bids Dec. 9. CD 11/20.

**J. J. Black & Co.**, 575 Plum St., N. W. Atlanta, Ga., CA **$718,926**, Southwest HIGH SCHOOL, ATLANTA, GA. City Bd. Educ., 13 Floor, City Hall, Atlanta, Ga. Bids Dec. 2, awarded Dec. 8, CD 12/12, under LB.

▲ **Stone & Webster Engineering Corp.**, 49 Federal, Boston, Mass. CA **$2,500,000**, design and construct. 46,000 KW ELECTRIC POWER PLANT, Unit 2, at Port Wentworth Station, SAVANNAH, GA. Savannah Electric & Power Co., 27 W. Bay St., Savannah, Ga.

**Apgar & Markham Constr. Co.**, 3216 Grand Ave., Miami, Fla. LB **$773,000** air conditioning, alterations, elevator, remodeling COURTHOUSE, Dade Co., MIAMI, FLA. Bd. Comrs. Dade Co., 10 Floor, Courthouse, Miami, Fla. Bids Dec. 9, CD 11/21.

**Settecasi & Chillura**, 2101 5 Ave., Tampa, Fla., CA **$869,000** Robinson HIGH SCHOOL, TAMPA, FLA. Hillsborough Co. Bd. P. Instruction, Courthouse, Tampa, Fla. Bids Nov. 25. CD 12/9, under LB.

Jehl Bros. Inc., P. O. Box 7128, Montgomery, Ala., CA $696,000 DEPARTMENT STORE, HUNTSVILLE, ALA. Montgomery Ward & Co., Inc., 619 W. Chicago, Chicago, Ill. Bids Nov. 25, CD 11/21.

J. C. McClendon, 2126-22 Ave., Gulfport, Miss., CA $994,000, STUDENT HOUSING, Mississippi Southern College, HATTIESBURG, MISS. State Bldg. Comn., Woolfolk State Office Bldg., Jackson, Miss. Bids Dec. 12. CD 11/21.

W. C. Salley, Box 24, Monroe, La., LB $610,600, 1 story, brick Morgantown SCHOOL, NATCHEZ, MISS. Bd. Trustees Natchez Separate School Dist., Natchez, Miss. L. L. Brasfield, 930-23 Ave., Meridian, Miss., archt. Bids Dec. 4. CD 12/11.

Barnet Brezner, Box 1030, Alexandria, La., LB $593,700 (6 bidders), Emanuel Baptist CHURCH, alterations, addns., ALEXANDRIA, LA. Emmanuel Baptist Church, 430 Jackson St., Alexandria, La. Bids Dec. 10. CD 12/10.

# MIDDLE WEST

## HEAVY CONSTRUCTION—BA

† O., Dayton—READINESS CREW BLDG.—BA 1/22—U. S. Eng., Box 59, Louisville, Ky., 2 story, rein.-con., Readiness Crew bldg. Wright Patterson Air Force Base, ENG-15-029-59-33. Over $500,000. CD 9/5.

## BUILDINGS—BA

Ind., Fort Wayne—SCHOOL—BA 1/13—Fort Wayne Community Schools, 1230 S. Clinton St., Lakeside Junior High School, 2100 Lake Ave. $900,000, Plans deposit $25, Martindale & Dahlgren, 2131 Fairfield Ave., archts. CD 6/22/55.

## HEAVY CONSTRUCTION—LB & CA

▲ Sanitary Dist. of Hammond, 5143 Columbia Ave., Hammond, Ind., received no bids Nov. 20, sewage treatment plant addn., HAMMOND, IND. $1,200,000. Carl B. Carpenter, 7501 Indianapolis Blvd., Hammond, Ind., engr. Will re-advertise for bids in about 3 months. CD 11/6.

ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

General Paving Co., 30 E. John St., Champaign, Ill., CA $695,274, paving 1.53 mi. from south of Lake Decatur bridge south, Macon Co. CD 11/28, under LB.

▲ Consolidated Constr. Co., 101 S. Wells St., Chicago, Ill., LB $1,293,822 (10 bidders), Kostner Ave. Auxiliary Outlet Storm Sewerage Sys., 30- to 90-in. rein.-con. pipe, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Dec. 10. CD 11/25.

▲ Michael Pontarelli, Inc., 4248 N. Kilpatrick Ave., Chicago, Ill., CA $1,551,001, auxiliary outlet sewer sys. Pratt Ave., Cont. 2-B SA 134-0708.1-CS, CHICAGO, ILL. City of Chicago, City Hall, Chicago, Ill. CD 10/13, under LB

▲ Robert A. Black, Inc., 13912 S. Halsted St., Riverdale, Ill., CA $1,168,831, bit. paving 1½ mi. Northwest Expressway, Canfield Rd. to Ill. Toll Hy., Park Ridge, CHICAGO, ILL. Comrs. Cook Co., County Bldg., Chicago 2, Ill. CD 12/3, under LB.

▲ WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Wis.—Mann Bros. Sand & Gravel, Inc., Lincoln and Third Sts., Elkhorn, Wis. CA $134,964, base and single aggregate bit. surf. 2.577 mi. C.T.H. E S.T.H. 15 Road, C.T.H. J, Contr. 1, Proj. S 0466 (1), Walworth Co., Bids Dec. 9;

Wis.—Fox Valley Constr. Co., 221 W. College Ave., Appleton, Wis., CA $657,877, concrete paving 5.46 mi. U.S.H. 14-Illinois State Line (Eastern Ave.-Turtle Creek Sect.) Road, IH 90, Contr. 1, Proj. I-903 (19) 176, Rock Co.;

Wis.—Koch Constr. Co., 239 W. Center St., Milwaukee 12, Wis., CA $699,687, concrete paving 3.725 mi. Hudson-Eau Claire (Menomonie-Elk Creek Sect.) Road, IH 94, Contr. 2, Proj. I-94-1 (31) 41, Dunn Co.;

Wis.—Woodrich Constr. Co., 201 18 Ave. S., Hopkins, Minn., CA $784,744, concrete paving 5.794 mi. Hudson-Eau Claire (U.S.H. 12-Roberts Sect.) Road, IH 94, Contr. 1, Proj. I-94-1 (33) 4, St. Croix Co., Grand total $2,277,272. CD 12/12, under LB.

## BUILDINGS—LB & CA

▲ Knowlton Constr. Co., 1313 W. Columbus St., Bellefontaine, O., CA $2,289,900 (10 bidders) METHODIST THEOLOGICAL SEMINARY, Stratford, on Rte. 23 just south of DELAWARE, O. Methodist Church, Falls Bldgs., Nashville, Tenn. Bids Dec. 3. CD 11/11.

▲ H. B. Layne Contractor, Inc., McAdams Bldg., Springfield, O., Owner Builds, $6,000,000, 400 HOUSES on 155-acre site, south and west of intersection of U. S. 25 and Jefferson Rd., MIDDLETOWN, O. Work to start in Spring, 1959.

▲ Van Deilen Homes, Whiteford, Mich., Owner Builds, $4,000,000, 300 HOMES, Douglas Village Sub-Division, Secor Rd. and Douglas Rd. bounded by Sterns and Alexis Rds., WHITEFORD, MICH.

# WEST OF MISSISSIPPI

## HEAVY CONSTRUCTION—BA

▲† Texas—BA About 1/20—U. S. Eng., Box 1229, Galveston, Galveston Seawall exten, Galveston, ENG-41-243-59-36. $1,000,000-$1,500,000.

† Tex., Austin — READINESS CREW BUILDING — BA About 1/21—U. S. Eng., Box 1229, Galveston, constr. readiness crew bldg., Bergstrom Air Force Base, ENG-41-243-59-33. $450,000-$500,000. CD 9/11.

† Tex., Del Rio—SHOP, etc.—BA About 1/22—U. S. Eng., Box 1229, Galveston, shop, armament and electronics, Laughlin Air Force Base, ENG-41-243-59-30. $500,000-$600,000. CD 9/9.

▲† Colo., Colorado Springs—CHAPEL—BA On Or About 2/15—Air Force Academy Construction Agency, P. O. Box 1670, Attn: AFOIE-6/CC, 2 story, bsmnt. academy chapel, landscaping, irrigation and walk lighting on Air Force Academy site, approx. 8 mi. north of here. (IFB) 05-613-59-10. Plans deposit $125. Skidmore, Owings & Merrill, 3333 N. El Paso, archts. and engrs.

## BUILDINGS—BA

Minn., Moorhead — LIBRARY — BA 1/8 — State Dpt. Admin., 19 State Capitol, St. Paul, library, Moorhead State College. $800,000. Plans deposit $50. Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. CD 7/23.

† Tex., Fort Hood—REGIMENTAL CHAPELS—BA About 2/10—U. S. Eng., Box 1229, Galveston, regimental chapels (2) ENG-41-243-59-29. $400,000-$500,000. CD 9/8.

Tex., College Station—PETROLEUM—BA 2/10—Texas A&M College Sys., petroleum bldg. $850,000. George Ingram & Glynn L. Harris, 1125 Freeway North, Beaumont, archts. CD 7/31.

## HEAVY CONSTRUCTION—LB & CA

† Yancy B. Turner, E. Barraque St., Pine Bluff, Ark., LB $423,725, est. $572,654 bank stabilization, Jack Bradley Bend, revetment and dikes, River Mile 117.2 to River Mile 115.6, Arkansas River Watershed 3 mi. north of Pine Bluff, CIVENG-03-050-59-19, PINE BLUFF, ARK., U. S. Eng., P. O. 867, Little Rock, Ark. Bids Dec. 9. CD 11/21.

▲ KANSAS—State Hy. Comn., Junction City,

Koss Constr. Co., 510 Iowa Des Moines Bank Bldg., Des Moines 9, Iowa., CA $1,597,317, Pt. I-concrete pavement 6.881 mi. beginning approx. ½ mi. north of Abilene at K-15 Interchange; northeasterly on interstate 70; CA $1,528,529, Pt. II-7.3 mi. beginning Dickinson-Geary County line ½ mi. north US-40, southwesterly on Interstate 70, SP 70-21 I 70-4(2) 274; CA $1,488,739, concrete pavement 5.783 mi. beginning Geary-Dickinson County line; easterly on Interstate 70, SP 70-31 I 70-5(21), 288, Geary Co. Grand total $4,614,585. Bids Dec. 5. CD 12/9, under LB.

▲ KANSAS—State Hy. Comn., Hays,

San-Ore Constr. Co., Inc., Box 417, McPherson, Kan., CA $1,066,205, Pt. 1-AA base course and b. conc. 7.446 mi. beginning approx. 1 mi. east Trego-Grove County line and ½ mi. south of Collery; east on Interstate 70; CA $945,576, Pt. II, 6.78 mi. b. conc. west of Wakeeney and ½ mi. south US-40 easterly Interstate 70; CA $1,159,704, Pt. III-8.402 mi. beginning approx. ½ mi. east and ½ mi. south of Wakeeney, southeasterly on Interstate 70, SP 70-98 I 70-2(2) 114 Pts. I, II & III, Trego Co. Grand total $3,171,485. Bids Dec. 4. CD 12/10, under LB.

King Constr. Co., Hesston, Kan., CA $573,218, sewage treatment plant, auxiliaries, appurtenances, etc. NEWTON, KAN. City, City Hall, Newton, Kan. Bids Nov. 4. CD 12/10, under LB.

† Secor Bldg. Co., Box 3251, Oklahoma City, Okla. LB $754,625, est. $776,400, 19,000 sq. ft., bsmnt., rein.-con. foundation walls, masonry walls, air-conditioned Readiness Crew Bldg. Schilling Air Force Base, ENG-23-028-59-25, SALINA, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids Dec. 9. CD 11/12.

Tuloma Builders, Inc., 8500 E. 41st St., Tulsa, Okla. CA $475,000, compressor station on Bridgeport-Fritch, Texas line, Mountain View, OKLAHOMA. Natural Gas Pipeline Co., Mountainview, Okla. CD 6/17/55, under Texas-Oklahoma.

† Pool Constr. Co., Box 540, Shawnee, Okla., LB $638,086, est. $872,702, relocate U. S. Hy. 60 across the Oolaugh Reservoir, ENG-34-66-59-14, OKLAHOMA. U. S. Eng., Box 61, Tulsa, Okla. Bids Nov. 13. CD 10/9.

▲ Sharman, Allen, Gay & Taylor, Inc., Bayou Bldg., Houston, Tex., CA Est. $5,160,000, 87 mi. 30 in. gas lines, 28 mi. 36 in. loop lines, in Louisiana, Texas and Mississippi, CA Est. $2,600,000, 65 mi. 30 in. and 23 in. gas line from Leidy Storage Field to its trunk line to New York, TEXAS, LOUISIANA, MISSISSIPPI, ALABAMA, GEORGIA, PENNSYLVANIA, and NEW JERSEY. Transcontinental Gas Pipe Line Corp., 3100 Travis St., Houston, Tex. Grand total. $23,150,000. CD 1/12/50, under Texas and New York;

H. C. Price Co., Bartlesville, Okla., CA Est. $2,450,000, 85 mi. 24 in. gas lines Louisiana (Texas, Louisiana, Mississippi, Alabama, Georgia, Pennsylvania and New Jersey);

Bechtel Corp., 220 Bush St., San Francisco, Calif., CA Est. $7,820,000, 55 mi. 36 in. and 8 mi. 30 in. gas lines in New Jersey and Pennsylvania and 70 mi. 36 in. in Alabama and Georgia (Texas, Louisiana, Mississippi, Alabama, Georgia, Pennsylvania and New Jersey);

Panama-Williams Corp., Melrose Bldg., Houston, Tex., CA Est. $5,120,000, 128 mi. 23 in. gas line from Leidy Storage Field to its trunk line to New York (Texas, Louisiana, Mississippi, Alabama, Georgia, Pennsylvania and New Jersey).

† U. S. Eng., Box 1229, Galveston, Tex., cancelled bids to have opened Dec. 18, channel excav., clearing and grubbing, hy. detour, Victoria area, Calhoun Co., ENG-41-243-59-32, TEXAS. Est. $400,000-$500,000. CD 11/26.

## BUILDINGS—LB & CA

Knutson Co., Builders Exchange Bldg., Minneapolis, Minn., Owner Builds, $500,000, 4 story, 39,000 sq. ft. OFFICE BLDG., 212 South Sixth St., MINNEAPOLIS, MINN. Thorshov & Cerny, Metropolitan Bldg., Minneapolis, Minn., archts.

Midwest Piping Co., P.O. Box 433, St. Louis, Mo., LB $632,950 (8 bidders), Contr. 55-power piping for 44,000 KW steam turbine generator unit at James R. Power Station extension, SPRINGFIELD, MO. City Utilities of Springfield, 301 E. Central St., Springfield, Mo. Burns & McDonnell Engineering Co., 95th and Troost, Kansas City, Mo., engr. Bids Dec. 2. CD 10/24;

Dameron Elec. Co., 427 E. Commercial, Springfield, Mo., LB $122,415 (7 bidders), Contr. 54-power wiring for 44,000 KW steam turbine generator at James R. Power Station extension, (Springfield, Mo.).

Brown & Shotlee, Newport, Ark., CA $150,000, est. $176,000, 1 story, 30,000 sq. ft. shoe FACTORY, on 150 x 200 ft. plot, west of Wyman Park, CORNING, ARK. Corning Industrial Development Corp., Corning, Ark. CD 10/16.

▲ Dickmann-Pickens & Bond Constr. Co., Gazette Blvd., Little Rock, Ark., CA $1,000,000-$3,000,000, 132,000 sq. ft. Village SHOPPING CENTER, 17½ acre tract, southeast corner Asher and Hayes Sts., LITTLE ROCK, ARK. Rock Creek Development Co., Inc., J. D. Ashley, pres., c/o Edw. F. Brueggeman, archt., Pyramid Life Bldg., Little Rock, Ark. Bids Nov. 5. CD 11/24, under LB.

Dickmann, Pickens-Bond Constr. Co., 3712 W. Okmulgee St., Muskogee, Okla., CA $732,361, DORMITORY and STUDENT CENTER, (Ark. 3-CH-27 DS), LITTLE ROCK, ARK., Philander Smith College, 812 W. 13 St., Little Rock, Ark. Bids Aug. 8, awarded Dec. 2. CD 9/10, under LB.

▲ Manhattan Constr. Co., 1804 Classen St., Oklahoma City 6, Okla. CA Est. $2,000,000, fdns. and utilities for Western Electric PLANT, West Reno and Council Rd., OKLAHOMA CITY, OKLA., Western Electric Co., 195 Broadway, New York, N. Y. Awarded Dec. 10. Treat Eng. Co., 3104 Classen St., Oklahoma City 18, Okla., engrs. CD 3/12/57.

Shiflet Bros., Contractors, Box 2181, Abilene, Tex. CA $539,000. (7 bidders) ELEMENTARY SCHOOL NO. 1, ABILENE, TEX. Abilene Ind. School Dist., Abilene, Tex. Bids Dec. 4. CD 11/21.

H. A. Lott, Inc., Box 25005, Houston, Tex. CA $750,000, 2 units, Bldg. K & M, 2 story CO-OP HOME for MEN, eight 1 story student family APARTMENTS, HUNTSVILLE, TEX. Sam Houston State Teachers College, Huntsville, Tex. Bids Nov. 26. CD 12/3, under LB.

O'Rourke Constr. Co., 1001 W. Commerce St., Dallas, Tex. LB $510,000, 2 DORMITORIES, Proj. Tx-41-CH-78 (D), IRVING, TEX. University of Dallas, Bd. Trustees, Box 1330, Dallas 21, Tex. Adams & Adams, 701 Exchange Bank Bldg., archts. and Irving D. Barter, 6910 Robinhood St., Dallas, Tex., superv. archt. W. L. Ziegler & Assocs., 1900 N. St. Paul St. and Zumwalt & Vinther, Merc. Sec. Bldg., Dallas, Tex., engrs. Bids Dec. 2. CD 7/3.

▲ E. I. DuPont de Nemours & Co., DuPont Bldg., Wilmington, Del. Owner Builds. PLANT to produce linear polyethylene by low pressure process at Sabine River Works, ORANGE, TEX. CD 6/18/52.

Gunter Hotel, Houston and St. Marys Sts., San Antonio, Tex., rejected bids July 1, HOTEL remodeling and imprvs., SAN ANTONIO, TEX. LB $545,000. CD 7/16, under LB.

Lembke Constr. Co., Box 455, Albuquerque, N. M., CA $510,399, Madison JUNIOR HIGH SCHOOL, ALBUQUERQUE, N. M. Bd. Educ., 724 Maple S.E., Albuquerque, N. M. Bids Nov. 12. CD 11/25, under LB.

† J. W. Bateson Co., Inc., P. O. Box 11307, Walnut Hill Station, Dallas 20, Tex., CA $561,231, 1 story, 130 x 215 ft. shock and vibration type LABORATORY, White Sands Missile Range, Inv. No. Eng-29-005-59-44, LAS CRUCES, N. M. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids Nov. 25. CD 12/11, under LB.

# FAR WEST

## HEAVY CONSTRUCTION—BA

Calif., Los Angeles—BA 1/2—Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Proj. 168 and unit 2, portion line "A" of Proj. 172, Burbank. $500,000. CD 11/10.

Calif., Santa Monica—BA 1/5—City, 1685 Main St., constr. 12- to 30-in. water main. $500,000. James M. Montgomery, 535 E. Walnut St., Pasadena, engrs. CD 6/16.

† Ariz., Tucson—ALERT FACILITIES—BA 1/13—U.S. Eng., 751 South Figueroa St., Los Angeles, Calif., constr. alert facilities at Davis-Monthan Air Force Base. ENG-04-353-59-39. $2,000,000. CD 9/10.

▲ Ore., Portland—EXPOSITION RECREATION—BA 1/29—Exposition Recreation Comn., Park Bldg., Exposition Recreation Center. Skidmore, Owings & Merrill, 2040 S.W. Jefferson, archts. CD 10/24, under LB.

## BUILDINGS—BA

Calif., Duarte—SCHOOL—BA 1/6—Duarte School Dist., 1427 Buena Vista Ave., 23,000 sq. ft. Valley View School. $390,000. Plans deposit $25. Allison & Rible, 3670 Wilshire Blvd., Los Angeles, archts. CD 9/16.

▲ Calif., San Pedro—HOSPITAL—BA 1/6—San Pedro Community Hospital, 1305 W. 6th St., 4 story, 140 bed hospital. $1,900,000. Extended date. Project Architects, 3460 Wilshire Blvd., Los Angeles, archts. CD 12/3.

Calif., Whittier—SCHOOL—BA 1/6—Lowell Jt. School Dist., 2250 W. Whittier Blvd., La Habra, constr.

frame, masonry, steel constr. Starbuck Intermediate School. $800,000. Daniel, Mann, Johnson & Mendenhall, 3325 Wilshire Blvd., Los Angeles, archts. CD 5/1.

▲ Wash., Spokane—SCHOOL—BA 1/7—School Dist. No. 81, W. 503 4 Ave., 1 story, 115,000 sq. ft., frame, masonry Sacajawea Junior High School. $1,300,000. Plans deposit $50. Whitehouse, Price, DeNeff & Deeble, Hutton Bldg., and L. G. Evanoff, American Legion Bldg., archts. CD 8/29.

Calif., Compton—SCIENCE, etc.—BA 1/14—Compton Junior College Dist., 1111 E. Artesia Blvd., constr. science bldgs., classroom addns., alterations. $600,000. Plans deposit $50. Austin, Field & Fry, 2311 W. 3rd St., Los Angeles, archts.

## BUILDINGS—SLC

Calif., Redlands—RECREATION CENTER—Empire Bowl, c/o Johnson, Engen & D'Agostino, archts.-engrs., 4868 Oak Park Ave., Encino, soon lets contract, recreation center, incl. 24 lane bowling center, W. Colton Ave. at New York St. $750,000. CD 11/14, under Unclassified.

## HEAVY CONSTRUCTION—LB & CA

▲ WASHINGTON—State Hy. Comn., Ernest J. Ketchum, chn., Olympia, Bids opened 12/16,
Scarsella Brothers, 2207 South 146 St., Seattle, Wash., LB $1,175,350, constr. 6 mi. Primary State Hy. No. 2, King Co. CD 12/1.

† G. J. Bouten Constr. Co., N. 627 Napa St., Spokane, Wash., LB $407,688, est. $371,255 (13 bidders), 20,000 sq. ft. rein.-con., masonry readiness crew bldg., Fairchild Air Force Base, ENG-45-108-59-23, SPOKANE, WASH. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids Dec. 9. CD 12/1.

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento, Bids opened 12/10,
Fisher & Stokes Constr. Co., 9126 Leroy St., San Gabriel, Calif. LB $969,246 (9 bidders), grade, surf. to constr. 0.9 mi. 4 lane freeway State Sign Rte 1 between Carpenter St. near Carmel and south city limit of Monterey, incl. ramps connections and grade separation for Carmel Hill interchange at Carmel-Pacific Grove Rd., V-Mon-56-1, Monterey Co. CD 11/12.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 12/11,
Griffith Co., 1060 S. Broadway, Los Angeles, Calif. LB $2,564,776 (10 bidders), grading, paving to constr. 2.6 mi. 6 lane freeway U. S. Hy. 80, 0.3 mi. east of Fairmount Ave. and ½ mi. west of Lake Murray Blvd., incl. 3 bridges, XI-S.D.-12SD, San Diego Co. CD 11/12.

▲† Winston Bros. Co. & Green Constr. Co., 1532 S. California Ave., Monrovia, Calif. LB $9,454,196, est. $9,865,457 (9 bidders) main dam and appurtenances, Government Camp for Terminus Proj., Kaweah River, Tulare Co., rolled earthfill type and aux. dam with rock fill outer slopes, 6,800,000 cu. yd. excav. from borrow, 1,300,000 cu. yd. compacted impervious fill, 4,300,000 cu. yd. compacted pervious fill, 1,500,000 cu. yd. random rock fill, 1,900,000 cu. yd. unclassified excav., Spec. 2382, ENG-04-167-59-1, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Dec. 16. CD 10/27.

▲† Manderbach Constr. Co., 1837 Victory Blvd., Glendale 1, Calif. CA $1,076,100, component test bldgs. and utilities, Naval Air Missile Test Center, NBy 19493-58, POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Nov. 19. CD 12/2, under LB.

▲ H. C. Smith Constr. Co., 3900 Rowena Ave., Los Angeles 39, Calif. CA $1,414,666, Storm Drain Bond Issue Proj. 8, Guirado Ave., Whittier, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 14. CD 11/20, under LB.

J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif. CA $693,326. constr. buried 20 m.g. reservoir at 8th St. and Fern Ave., Upland, ONTARIO, CALIF. City, City Hall, Ontario, Calif. Bids Oct. 14. CD 10/22, under LB.

† OREGON—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Bids opened 12/11,
Fred H. Stegeman & Assocs., 455 A. St., Lebanon, Ore., LB $499,361, est. $595,091 (11 bidders), grading 8.306 mi. Mt. Hood Loop Rd. and 140 ft. concrete girder bridge, Hood River Co. CD 12/3.

▲ OREGON—State Hy. Comn., Hy. Bldgs., Salem,
Ore.—E. L. McNutt Co., 351½ E. Broadway, Eugene, Ore., CA $564,500, grading 2.97 mi. Josephine County line-Evans Creek Section Pacific Hy. FAIP I-5-1(7)50 Jackson Co.; CA $521,084, grading, oiling 7.94 John Day Hy. FAP F-64(3), Wheeler Co.;
Ore.—Coos Bay Dredging Co., Box 217, Coos Bay, Ore. CA $606,722, grading, paving. 1.24 mi. and 437 ft. concrete bridge, Oregon Coast Hy. FAP F-109(9) Coos Co.;
Ore.—Peter Kiewit Sons Co., Box 531, Vancouver, Wash., CA $1,161,017, paving 2.07 mi. Southwest 11th Ave.-Tigard interchange unit, Harbor Drive-Washington County line section, Baldock Freeway FAIP I-5-6-(13) 295 Multnomah Co. Grand total $2,853,325. Bids Nov. 12, awarded Dec. 11. CD 11/20, under LB.

▲ OREGON—State Hy. Comn., Hy. Bldgs., Salem,
Warren Northwest, Inc., Box 5072, Portland, Ore. CA $1,507,104 paving 11.25 mi. Lebanon Road-Halsey Interchange section of relocated Pacific Hy. FAIP I-5-4(26) 216, Linn Co. Bids Dec. 9, awarded Dec. 11. CD 12/16, under LB.

## BUILDINGS—LB & CA

Twin Lakes Constr. Co., Harold W. Heers, P. O. Box 4055, HC Station, Riverside, Calif. LB $904,000, 75 units, masonry constr., slab floors, Low Rent HOUSING, walks, sewers, fencing, at Nev. 2-3, Marble Manor, located next to Marble Manor 2-2, LAS VEGAS, NEV. Las Vegas Housing Auth., Exec. Dir., 811 N. "U" St., Las Vegas, Nev.

† Bonnell Constr. Co., 760½ Commerce St., Tacoma, Wash., CA $413,134, est. $460,137 (12 bidders), 147 x 256 ft. ENLISTED MEN'S SERVICE CLUB BLDG. in regimental area, Inv. 59-21, FORT LEWIS, WASH. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids Dec. 9. CD 12/1.

Development Corp. of Riverside, 5708 Van Buren Ave., Arlington, Calif. Owner Builds $627,510, 63 stucco DWELLINGS, Challen St., etc., Sierra Tr., ARLANZA, CALIF.

▲ Larwin Co., 8692 Wilshire Blvd., Beverly Hills, Calif. Owner Builds. $1,144,919, 100 DWELLINGS, south of Ball Rd., between Holder and Knott Sts. Tr. 3094, BUENA PARK, CALIF.

▲ Campbell & Erickson Co., 800 R St., Sacramento, Calif. CA $1,276,977, 1 story, 80,200 sq. ft. wood frame, steel frame, Camps Verdes JUNIOR HIGH SCHOOL, North Highlands, DEL PASO HEIGHTS, CALIF. Grant Union High School Dist., Grand Ave., Del Paso Heights, Calif. Bids Oct. 1. CD 10/7, under LB.

Jack H. MacDonald Co., 321 S. San Vicente Blvd., Los Angeles, Calif. CA Est. $650,000. 65,744 sq. ft. FREIGHT TERMINAL area, 4500 E. Bandini Blvd., EAST LOS ANGELES, CALIF. Denver-Chicago Trucking Co., 321 S. Van Vicente Blvd., Los Angeles, Calif.

▲ Allied Constr. Co., 5447 El Cajon Blvd., San Diego, Calif. Owner Builds. $1,570,000, 118 DWELLINGS, Anderson, Burnham, Dorothy and Bosworth Sts., EL CAJON, CALIF.

▲ D. W. Edwards, Inc., 2131 W. Ball Rd., Anaheim, Calif. CA $1,045,200, 82 DWELLINGS, Tract 2408, GARDEN GROVE, CALIF. Lampson Homes, Box 509, Santa Ana, Calif.

Marina Shopping Centers, Ltd., 44 65th Pl., Long Beach, Calif., Owner Builds. $700,000. concrete block and stucco STORE BLDGS., 4600 Pacific Coast Hy., LONG BEACH, CALIF. Hugh Gibbs, 441 E. 1st St., Long Beach, Calif., archt.

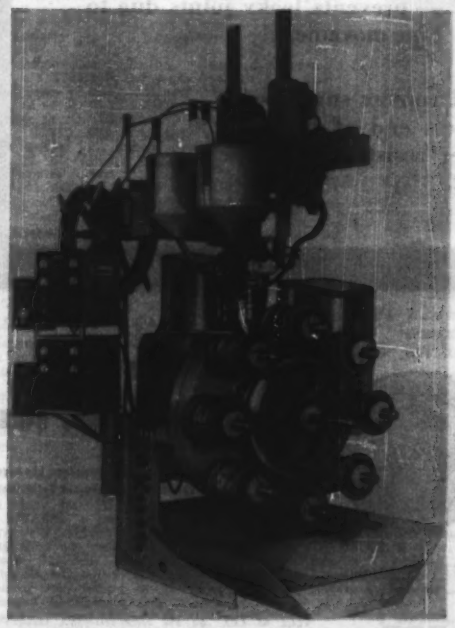
▲ R. A. Watt Constr. Co., 7862 S. Western Ave., Los Angeles, Calif. CA $1,317,100. 114 stucco DWELLINGS, Fallbrook Ave., Minsteel Ave., Royer Ave., Lena Ave., Stagg St., LOS ANGELES, CALIF. Canoga Gardens, 7862 S. Western Ave., Los Angeles, Calif.

Jas. A. Bower, 969 N. La Cienega Blvd., Los Angeles, Calif. CA $514,000, 49 stucco DWELLINGS, Winfield St., Truesdale St., Dorrington Ave., Van Nuys Dist., LOS ANGELES, CALIF. Lomed Homes, Inc., 969 N. La Cienega Blvd., Los Angeles, Calif.

J&B Constr. Co., 5572 Valley Blvd., Los Angeles, Calif. LB $432,710 (5 bidders) Monrovia HIGH SCHOOL

(Continued on page 119)


# Revolutionary Rexarc Enables High Speed Production in Tractor Roller Rebuilding



**Here is the new Rexarc MS-8 Automatic Twin Head Roller and Idler Welder and Positioner that revolutionizes roller rebuilding. One operator can do as much high quality work as three to four men with other types of equipment.**

•

**Mounts 8 rollers at a time. Hydraulic indexing enables virtually a continuous automatic welding operation. Twin heads build up both sides of roller simultaneously.**

•

**Factory engineer trains your operator, assuring excellent results from the very beginning of welding operations, at no additional cost.**

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***Write, wire or phone today for complete information about this revolutionary profit-maker.***

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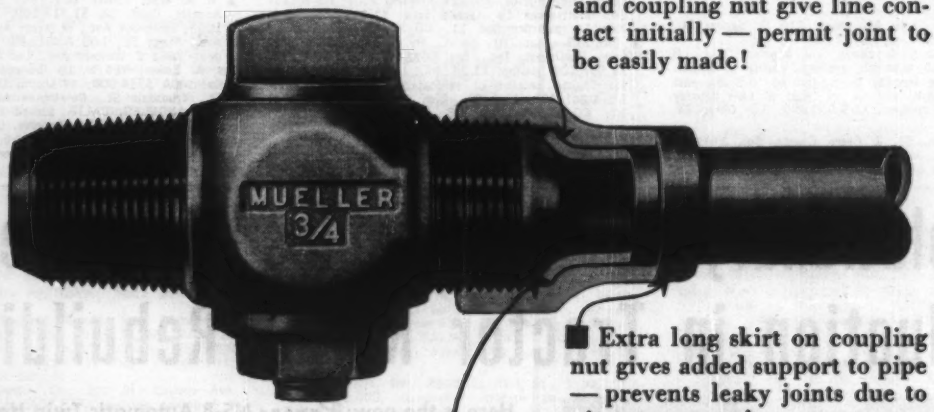
SALES OFFICES AND FACTORY WEST ALEXANDRIA OHIO U S A

# MUELLER® CORPORATION STOPS

## . . . *with* MUELLER *copper service pipe connection*

■ Convex surfaces on stop body and coupling nut give line contact initially — permit joint to be easily made!



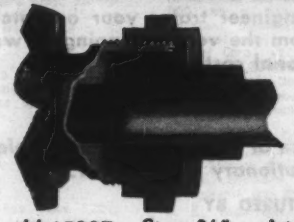

■ Extra long skirt on coupling nut gives added support to pipe — prevents leaky joints due to pipe movement!

Sizes from ½" through 2"

■ Opposed convex surfaces do not compress end of flange — give greater resistance to pipe pulling out.

NEW

INSULATING COUPLING OUTLET



H-15007 Sizes ¾" and 1"

Mueller corporation stops with insulating coupling outlet completely insulate copper service pipe from main to minimize electrolytic corrosion.

**MUELLER CO.**

**DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario

(Continued from page 117)

rehabilitation, MONROVIA, CALIF. Monrovia-Duarte Union High School Dist., 845 W. Colorado St., Monrovia, Calif. Bids Dec. 10. CD 11/12.

▲ **Monterey Bldg. Co.**, 1166 E. 58th St., Los Angeles, 11, Calif. Owner Builds. $1,790,850, constr. 1,204 sq. ft. 152 stucco DWELLINGS, Tr. 21072, MONTEREY PARK, CALIF.

**Crone Co.**, 922 W. Center St., Anaheim, Calif. CA $456,000, 38 frame, stucco, 1,379-1,485 sq. ft. DWELLINGS, Pescados, La Mesa, Manecita, Aranza Drives, NORWALK, CALIF. California Federal Savings & Loan Assoc., 1444 Wentworth, Pasadena, Calif.

**Western Empire Constr. Co.**, P. O. Box 516, Concord, Calif. LB $538,600 (14 bidders) 34,000 sq. ft. concrete slab on grade, stucco ext. King ELEMENTARY SCHOOL, OAKLAND, CALIF. Oakland Bd. Educ., 1025-2nd Ave., Oakland, Calif. Bids Dec. 9. CD 11/11.

**Geo. Alexander Constr. Co.**, 1280 N. Palm Canyon Dr., Palm Springs, Calif. Owner Builds. $516,000, 43 DWELLINGS, Starr Rd., Racquet Club Rd., Desert Holly Circle, Desert Willow Circle, PALM SPRING. CALIF.

**Sun Gold, Inc.**, 4330 Lemon St., Riverside, Calif. Owner Builds. $731,996, 56 stucco DWELLINGS, Watkins and Broadbent Sts., University Hills Tract No. 2, RIVERSIDE, CALIF.

**John Godwin**, 2885 Newton Ave., San Diego, Calif. LB $449,483 (7 bidders) frame, stucco Toler ELEMENTARY SCHOOL, Morena Blvd. and Baker St., SAN DIEGO, CALIF. San Diego School Dist., 4100 Normal St., San Diego, Calif. J. Thomas Erchul, 530 Broadway St., San Diego, Calif., archt. Bids Dec. 4. CD 11/9/56.

**David M. Sapp**, 1401 5th Ave., San Diego, Calif. Owner Builds. $917,350, 22 APARTMENTS, Glenhaven and Hurlbut Sts., SAN DIEGO, CALIF.

▲ **Claude L. Lindsay**, 7499 Bagdad St., San Diego, Calif. CA $1,085,675, constr. 38 frame, stucco DWELLINGS, Mariesta, Hatton and Salizar Drives, SAN DIEGO, CALIF. Lane Plumbing Co., 7499 Bagdad St., San Diego, Calif.

## CANADA

### HEAVY CONSTRUCTION—BA

**STATE HIGHWAY LETTINGS**
**BRIDGES**

December 30 British Columbia

### BUILDINGS—BA

▲ **Que., St. Hubert**—HOUSING—BA 2/10—Central Mortgage & Housing Corp., 5801 Monkland Ave., Montreal, supply and operation 200 unit housing near Air Force Base, $1,000,000. CD 12/27/51.

**Ont., Ottawa**—BIOLOGY—BA 1/8—University of Ottawa, Laurier Ave. E., 3½ story, bsmnt., 95x137 ft. steel structure, concrete slab and cement block walls with Indiana limestone, architectural terra-cotta tar, gravel roof on concrete slab Biology Bldg., incl. concrete fdns., $800,000. Jean Serge Lefort, 86 Greenfield Ave., archt. CD 12/11.

### HEAVY CONSTRUCTION—LB & CA

▲ **Scott-Jackson Constr. Co. Ltd.**, Box 66, Toronto, Ont., LB $524,000, Alternate $649,000 (14 bidders) The Queensway Sanitary Trunk Sewer, incl. approx. 3,102 ft. 72 in. tunnel cast in place, 3,015 ft. 38 and 60 in. concrete pipe, 4,080 ft. 8 in. force main, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Dec. 9. CD 12/4;

**John Maguire Contg. Co. Ltd.**, 24 Birch Ave., Toronto, Ont., LB $373,700 (15 bidders) North York Storm Trunk Sewer in tunnel and open cut approx. 4,741 ft. of 36 to 66 in. (D-13-58) (Toronto, Ont.);

**Clairson Constr. Co. Ltd.**, 7 Connie Ave., Toronto, Ont., LB $105,793 (8 bidders) Black Creek Sanitary Trunk Sewer, incl. approx. 3,965 ft. 36- to 42-in. pipe (17-58) (Toronto, Ont.);

**Joe Paolatto & Sons**, 235 Eugenia St., Toronto, Ont., LB $391,000 (15 bidders) Etobicoke Sanitary Trunk Sewer, incl. approx. 6,983 ft. 60 and 66 in. concrete pipe (Toronto, Ont.). CD 12/5.

**SASKATCHEWAN**—Sask. Govt., Dpt. Hys., Parliament Bldgs., Regina, Bids opened 12/3,

**General Constr. Co. (Alberta) Ltd.**, Corner 2 and 3 Aves., Lethbridge, Alta., LB $644,434, paving 20.33 mi. from Frobisher to Brenfait Proj. No. C-58-63. CD 11/28.

### BUILDINGS—LB & CA

**Foundation Co. of Ontario Ltd.**, 603 Clarke Sideroad, Box 847, London, Ont., CA Est. $750,000, 1 story, 76,000 sq. ft. WAREHOUSE and FACTORY, Richmond St. exten, incl. truck docks, train sheds, CHATHAM, ONT. Owner, c/o contractor.

**Ellis-Don Ltd.**, Box 852, London, Ont., LB $876,772 (8 bidders) 1 and 2 story, 220 x 380 ft., structural steel frame, asphalt tile, vinyl asbestos, terrazza flooring 24 room HIGH SCHOOL, LONDON, ONT. East Middlesex High School Bd., John Kennedy, chn., London, Ont. Bids Dec. 10. CD 11/24.

**Malan Constr. Co. Ltd.**, 303 Bering Ave., Toronto, Ont., LB $587,681, 1 and 2 story, precast concrete, brick, block, 7 CLASSROOM extens. and PUBLIC SCHOOL renovation, incl. concrete block fdn., TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont. Craig, Madill, Abram & Ingleson, 290 Merton St., Toronto, Ont., archts. M. S. Yolles & Assocs., 111 Richmond St., Toronto, Ont., engrs.

(Proposal Advertisements see pp. 133 to 135)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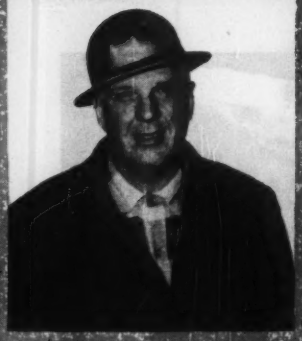

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2. Total square feet of forms required
3. Number of ties required
4. Forming recommendations

PLUS a complete proposal, advising what it would cost to rent the complete UNI-FORM "Package" for the job.

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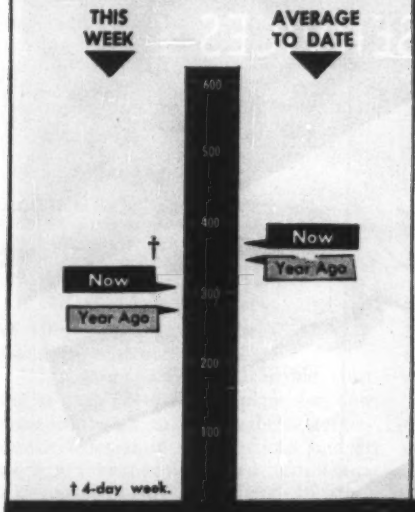
# Construction Scoreboard

## ACTIVITY THIS WEEK

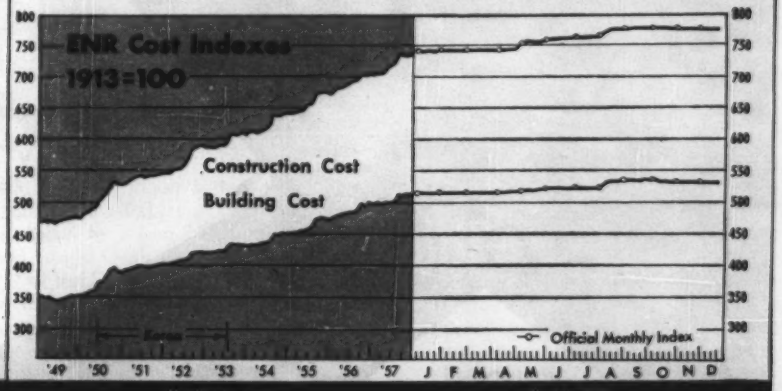
### Contract Awards
Millions of Dollars




## COST INDEXES AS OF NOW

| ENR INDEXES (1913=100), 20-cities' average | Week of Dec. 18 1958 | % Change from Nov. 20 1958 | % Change from Dec. 19 1957 |
|---|---|---|---|
| Construction Cost | 773.71 | −0.05 | +4.90 |
| Building Cost | 534.69 | −0.07 | +3.43 |

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.




## AMOUNT OF CONTRACTS LET

| By Ownership | This Week | Cum. 52 wks 1958 millions | Chge '57-'58 % |
|---|---|---|---|
| All Heavy Constr. | $307.6† | $19,164.6 | +7 |
| Private | 121.9 | 7,730.2 | −8 |
| Public | 185.7 | 11,434.4 | +19 |
| State & Municipal | 163.8 | 8,608.4 | +16 |
| Federal | 21.9 | 2,826.0 | +29 |
| **By Type of Work** | | | |
| Public | | | |
| Waterworks | 3.5 | 306.2 | −17 |
| Sewerage | 12.3 | 618.1 | +11 |
| Bridges* | 10.2 | 713.3 | −9 |
| Highways | 95.1 | 3,729.0 | +26 |
| Earthwork, Waterways | 4.3 | 1,044.9 | +8 |
| Building, Excl. Housing | 27.8 | 2,609.9 | +11 |
| Housing | 8.0 | 1,054.6 | +64 |
| Unclassified | 24.4 | 1,369.1 | +40 |
| Private | | | |
| Buildings | | | |
| Mass Housing | 40.3 | 3,739.0 | +23 |
| Commercial | 21.2 | 1,795.1 | +2 |
| Industrial | 35.5 | 1,756.4 | −43 |
| Unclassified | 25.0 | 429.0 | −14 |

*Includes private bridges †4 Day week

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

## NEW CAPITAL FOR CONSTRUCTION

| | Week of Dec. 18 | Cum. 51 wks 1958 millions | Chge '57-'58 % |
|---|---|---|---|
| Corporate Securities | $ 41.7 | $5,038.7 | −11 |
| State and Municipal: | | | |
| All Except Housing | 158.1 | 6,177.5 | +12 |
| Housing | ... | 188.0 | −36 |
| Federal Loans | 3.3 | 195.3 | +1 |
| Federal Aid | ... | 2,596.2 | +20 |
| Total Nonfederal | $203.1 | $14,125.7 | +3 |
| Federal Appropriations: | | | |
| Projects in U. S. | $ ... | $3,946.1 | +42 |
| Outside U. S. | ... | 35.2 | +21 |
| Total New Capital | $203.1 | $18,106.9 | +10 |

## BACKLOG OF PROPOSED HEAVY CONSTRUCTION

| | November 1958 (millions) | Percent Chage from last Month | Year |
|---|---|---|---|
| Total U. S. (ENR reported) | $113,762 | +0.4 | + 2.7 |
| By Ownership— | | | |
| Private | 49,030 | +0.7 | + 5.0 |
| State & Municipal | 50,601 | +0.3 | + 0.8 |
| Federal | 14,131 | −0.5 | + 1.4 |
| By Type of Work— | | | |
| Waterworks | 2,628 | −1.6 | + 9.5 |
| Sewerage | 3,594 | +4.2 | + 7.5 |
| Bridges | 3,383 | −0.1 | + 3.0 |
| Highways | 13,057 | −0.3 | + 0.4 |
| Earthwork, Waterways | 11,910 | −0.3 | − 3.8 |
| Public Buildings | 20,516 | +0.3 | + 2.0 |
| Industrial Buildings | 16,763 | +0.9 | − 0.1 |
| Commercial Buildings | 22,294 | +0.9 | +11.0 |
| Unclassified, Private | 9,973* | +0.2 | + 1.4 |
| Unclassified, Public | 9,644 | −0.2 | + 0.3 |

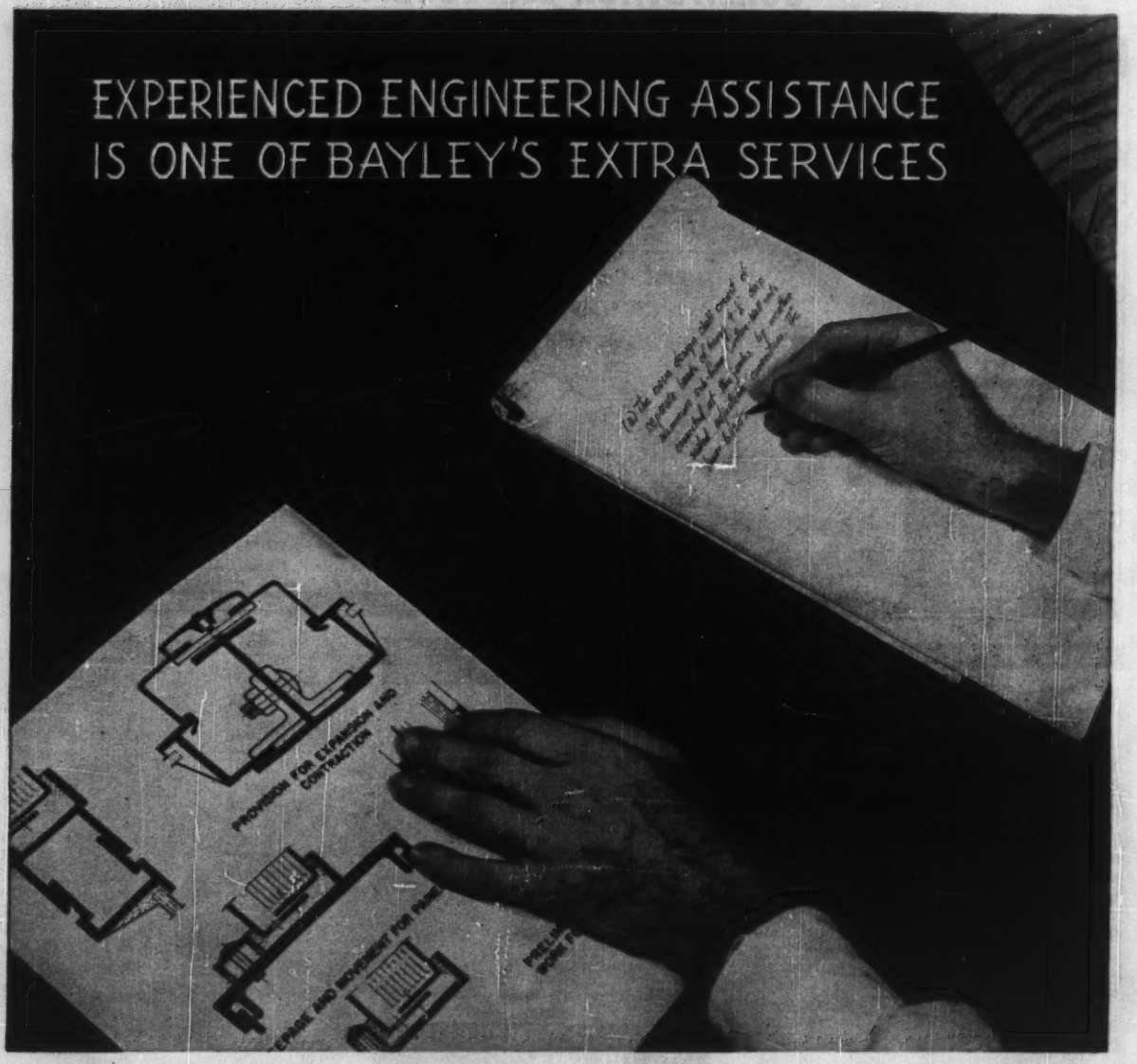
* Includes private bridges, $83 million

## FLOW OF NEW PROJECTS INTO THE BACKLOG

| | Nov. | 1958 11-months (millions) | Percent Change from '57 Year Nov | Cum. |
|---|---|---|---|---|
| Total U. S. (ENR reported) | $1,274 | $15,040 | − 7.0 | −21.0 |
| By Ownership— | | | | |
| Private | 632 | 6,333 | +21.0 | −24.4 |
| State & Municipal | 619 | 6,523 | −16.6 | −26.9 |
| Federal | 24 | 2,184 | −76.5 | +26.0 |
| By Type of Work— | | | | |
| Waterworks | 27 | 465 | +56.4 | + 2.7 |
| Sewerage | 180 | 710 | +197.9 | +27.7 |
| Bridges | 19 | 411 | −78.3 | −33.4 |
| Highways | 103 | 1,724 | −62.2 | −23.1 |
| Earthwork, Waterways | 13 | 635 | −10.1 | −60.6 |
| Public Buildings | 273 | 3,685 | + 6.9 | − 7.8 |
| Industrial Buildings | 181 | 1,255 | −15.1 | −59.1 |
| Commercial: Mass Housing | 178 | 2,032 | +29.0 | + 0.6 |
| Other Building | 239 | 2,663 | +71.6 | +14.7 |
| Unclassified, Private | 34 | 384 | +13.5 | −60.3 |
| Unclassified, Public | 28 | 1,078 | −70.3 | − 8.9 |

## FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

| | | | | |
|---|---|---|---|---|
| Total U. S. (ENR reported) | 588 | 9,386 | − 9.3 | + 5.9 |
| By Ownership— | | | | |
| Private | 142 | 2,547 | −32.1 | −23.3 |
| State and Municipal | 401 | 5,160 | +12.2 | +20.1 |
| Federal | 46 | 1,679 | −44.7 | +34.9 |

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# States Need Construction Cash

- Officials ready requests for taxes and bond issues to finance state projects; highways get top priority
- Federal highway grants create problems for states that are short of funds needed to pay their share

Officials throughout the country are shaking state piggy banks in a search for new construction funds.

The money that's available just doesn't match spending plans for new state construction. Annual budget requests from state agencies and budget estimates by newly elected administrations are pointing up deficits. In some states, revenues are down. In others, construction plans are too big even with expected revenues.

Highway programs top the list of construction yet to be financed. There is a noticeable urgency in requests by state highway officials, and others, for more state highway money. Chief among their demands is more state funds to match federal-aid funds for which they're eligible.

The two most popular sources of new funds appear to be increased taxes, particularly on gasoline, and new bond issues.

Here is a run-down on problems that confront the states in financing new construction:

• **Alabama**—Incoming Gov. John Patterson may ask a special session of the state legislature for a $50 million road bond issue. The state is eligible for $379 million in federal-aid funds, he says. To match this amount with state funds, $120 million is required. Only $70 million is now available, the governor-elect says.

• **Arkansas**—The State Highway Commission needs $10 million per year to receive full benefit from federal aid. But it will settle for the $7.7 million requested of the 1959 legislature. A one half cent boost in gasoline taxes, to seven cents per gallon, and higher registration and license fees would help support the new request, says commission chairman Glenn F. Wallace.

• **California**—Cities in the League of California want a one cent increase in the state's gasoline tax to provide funds for construction and maintenance of city streets.

• **Connecticut**—Members of the 1959 state legislature have indicated support for a $700 million state highway program. If passed, it would probably be financed by a bond issue, plus federal-aid funds.

• **Florida**—State Road Board Chairman Joe Grotegut has suggested an additional one cent gasoline tax in counties where road needs justify it.

• **Illinois**—In Chicago, the Transit Authority is asking for $31.5 million in public funds for capital improvements in the next three years. Last year the state legislature rejected a CTA request to finance its 20-year, $300 million improvement program with money from state gasoline taxes.

• **Maine**—The state legislature, which expects an over-all deficit of $18.5 million, may pare some money from the $21.5 million highway and $35 million construction budgets.

• **Massachusetts**—Gov. Foster Furcolo and state legislative leaders will seek a half cent increase in the present 5¼ cents per gallon gasoline tax when the new legislature meets. The tax boost would permit continued expansion of the state road system.

• **Minnesota**—Two bills to provide increased highway funds will face the 1959 state legislature, according to State Representative Charles Halstad.

A one-cent-per-gallon increase in the state gasoline tax will be proposed to help match federal-aid funds and meet rising highway department costs. Also introduced will be a proposal for $20 million in bonds to improve rural roads.

• **Missouri**—Rox Whitton, chief state highway engineer, advocates a 20-year highway program costing $4.5 billion. Mr. Whitton estimates that a 2 cent per gallon increase in gasoline taxes, an added $36 million to annual revenue, would be enough to support the new highway program.

• **New York**—State Comptroller Arthur Levitt will seek legislation to set up a school bond authority. Reason: to obtain more favorable interest rates on school construction bonds.

• **North Carolina**—State Highway Director W. F. Babcock has suggested to the Budget Commission that more money for the state highway fund should be raised by increasing taxes. He estimates a deficit of $32 million in the next two years. Revenues will be that much under requirements for maintenance and improvement of state roads.

Gov. Luther Hodges has received a report recommending that new sources of revenue be sought for state aid to schools. A variety of new consumer and commercial taxes are suggested.

• **Ohio**—A state-wide conference on education has considered new taxes for additional school funds. Among the possibilities are levies placed on various consumer goods and on commercial income.

• **Pennsylvania**—State Highway Secretary Lewis M. Stevens has predicted an increase in state motor fuel taxes to finance Pennsylvania's highway construction program. Part of the increase will be used to attract professional engineering personnel, he says.

• **South Carolina**—The South Carolina Municipal Association will recommend that the state legislature increase the state gasoline tax by 1 cent per gallon, to 8 cents, to help finance general municipal services and improvements.

• **South Dakota**—A committee of the state legislative council will suggest that a state agency be granted power to sign prorating agreements with other states. Under such pacts a licensed trucker would pay registration and compensation fees in proportion to the miles traveled in the states where he operates.

• **Virginia**—A one cent increase in gasoline taxes is needed to help match an estimated $1 billion in federal-aid money over the next 10 years, estimates State Sen. A. L. Boothe.

• **Washington**—Controversy is expected over proposed bridges to span Puget Sound, west of Seattle. A legislative committee may propose that the state's motor vehicle fund be used as collateral for a $190 million bond issue to finance the bridge project. Private road associations oppose the plan. They say it would divert state funds that are badly needed to match federal-aid funds.

• **Wisconsin**—A $250 million revenue bond program to build four-lane highways and expressways is "just a start," says John C. Lobb, chairman of Milwaukee's Metropolitan Study Commission. He supports a long-range state highway program paid for from gasoline and motor vehicle taxes.

(*B&F continued on page 124*)

# Roofless House Brings Buyers

A Kansas City, Kan., homebuilder has found a simple way to pull traffic to his building site, rush prospective buyers through the model house and keep interest in the area at high pitch. He simply left the roof off the model.

A ramp spans the roofless structure. From it, potential buyers can get a quick, accurate view of the floor plan—and they don't even have to wipe the mud off their shoes. The idea also eliminates the usual pileup of persons waiting to see the model.

When the promotion is ended the roof will be lifted onto the house with a crane, putting the structure in shape to be sold.

The roofless model is the brainstorm of builder Fred Olsen, head of Southwest Construction Inc.

# Happy '59 for Manufacturers

Manufacturers of construction machinery and equipment, prefabricated houses and flat glass should all do better in 1959 than in 1958. The new forecast comes from the Commerce Department's Business and Defense Services Administration.

It says the construction machinery and equipment industry will show a "slow rate of pickup" in 1959. Shipments are expected to total about $2 billion in 1959, up 18% from 1958. However, BDSA points out part of the increase will come from 1958 price increases that averaged 4%. In addition, 1959 will not be a record year in terms of sales.

BDSA says the construction machinery industry in 1958 was "characterized" by strikes and was also burdened with a huge inventory totaling $500 million. Normal inventory is placed at about $100 million.

The bureau predicts these two knotty problems will be ironed out in 1959. Inventory will be reduced to a "near-manageable level," as contractors' demands for new machinery rise.

The prefabricated wood housing industry is expected to hold its present 6.6% share of the total one-family housing market in 1959. Output is expected to hit a record of 64,000 units. Biggest question mark in the 1959 estimate, however, is doubt about the flow of mortgage credit for housing, stemming from "possible changes in monetary policies." BDSA qualifies this possibility by saying that in past years the prefabricated housing industry has been less affected by adverse economic conditions than builders of conventional housing.

The flat glass industry probably will increase production in 1959 over 1958. The rise will result from the larger amounts of glass used in 1959 automobiles and houses. BDSA says the industry was hurt in 1958 by large imports of sheet and plate glass, a drop in car production and a general decline in domestic demand.

# Banking Bids

## St. Paul contractors deposit bids to curb bid-shopping

Some people go to a bank to deposit money. But in St. Paul, Minn., electrican contractors go there to deposit their bids.

St. Paul's American National Bank is part of a bid depository plan aimed at curbing bid shopping and peddling. The St. Paul Chapter of the National Electrical Contractors Association initiated the plan.

Bid shopping is the attempt of a general contractor to get lower subcontract bids by bargaining with subcontractors in a given trade.

Bid peddling is practiced by subcontractors who seek to win a subcontract by bargaining with the general contractor outside of the formal bidding system.

The St. Paul plan is formally called Job Registration Service. Under it, a subcontractor invited to bid on electrical work over $3,000 furnishes the bank with initial information on the job, type of work, and other details. The bank then gives that contractor the names of any others who have also furnished information on that job.

Each contractor deposits a sealed bid with the bank. The bank holds these bids until after the general contract is awarded. Two hours after the contract is let, the bank opens the bids, tabulates the information and forwards it to the NECA chapter manager. He gives the information to those who bid on the job and other contractors who request it.

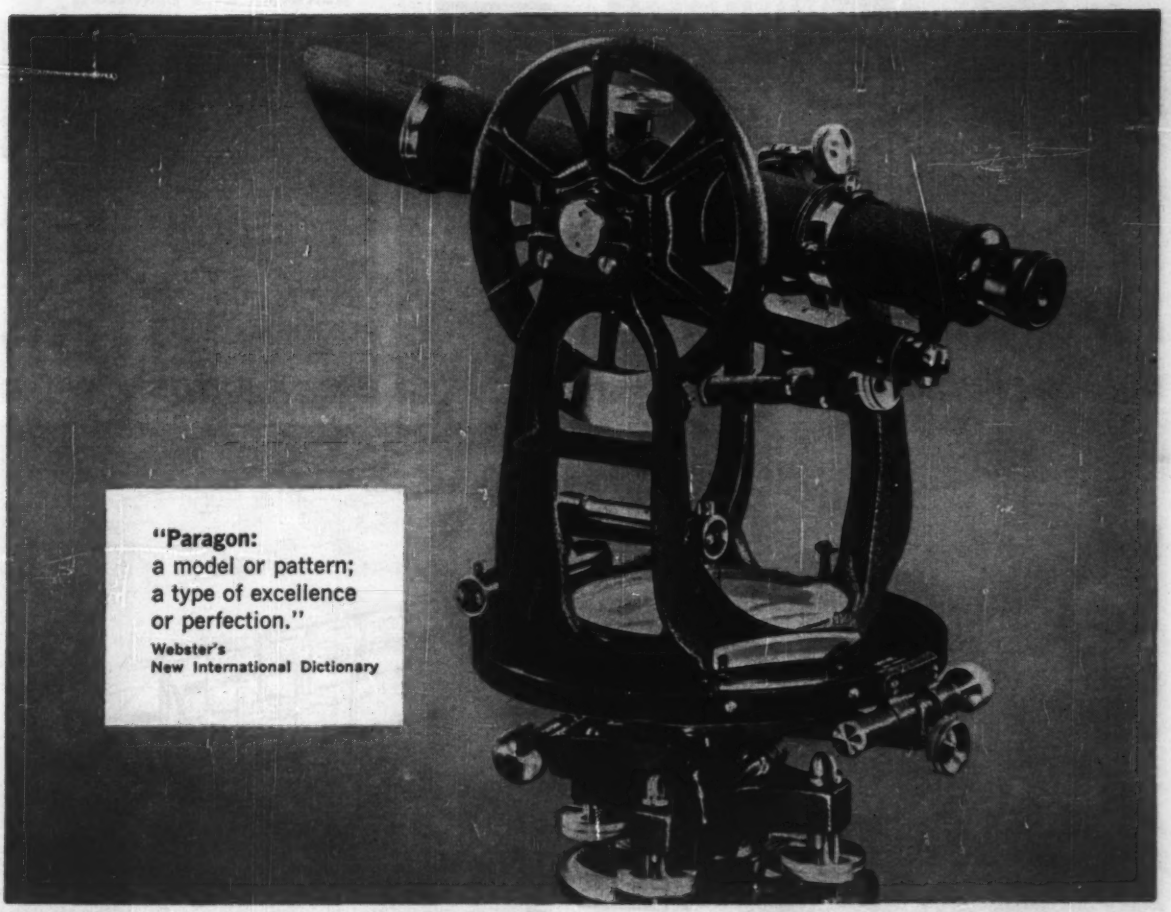
The St. Paul chapter now pays the bank for this service. In the future it may be partially supported by participating contractors.

Participation in the plan is voluntary; and the service is available to members and non-members alike.

Before embarking on this plan, the NECA chapter got assurance from the U. S. Attorney General's office that the plan would not violate anti-trust laws. They sought such clearance because, in the past, NECA chapters and other subcontractor organizations have been sued by the federal government for violations of the Sherman Anti-Trust Act.

"The plan," says NECA, ". . . brings a finality in the competition on subcontract work and makes a public record of the bids, thus discouraging chiseling and under-the-table dealing." NECA cautions its members: "The plan must not be used as a cloak for bid rigging, price fixing or other restraint of trade."

(*B&F continued on page 127*)

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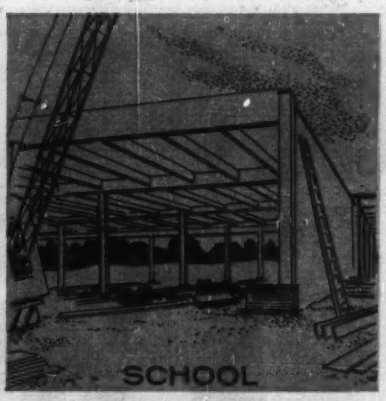

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**Lewis Manufacturing Co., Inc.**
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**New England Concrete Pipe Corp.**
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**Precast Concrete Limited**
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**Precast Industries, Inc.**
P. O. Box 349, Kalamazoo, Mich.

**Precrete, Inc.**
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**Schell Industries Limited**
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Box 348, Maple, Ontario, Canada

# Monopoly in Sand

## Merger of sand companies ruled Clayton Act violation

The federal anti-merger law has been used for the first time against firms directly in the construction industry.

An examiner for the Federal Trade Commission applied the same law on corporate mergers that was used recently to block the merger of Bethlehem Steel Corp. and Youngstown Sheet and Tube Co.

The case involves acquisition of the Sandusky Division of Kelley Island Co. by Erie Sand and Gravel Co. of Sandusky, Ohio.

If the ruling is upheld by the five-member commission and the courts, Erie Sand and Gravel will have to sell dredging vessels, dock property and leases it bought in 1955. Purchase price is estimated at $1 million.

The examiner said the acquisition violated the Clayton Act's merger provisions.

The examiner based his ruling on what he says market facts show. He said lake sand is a separate line of commerce and that the relevant market includes the southern shore of Lake Erie from Buffalo, N. Y. to Sandusky, Ohio, extending up to 12 miles inland.

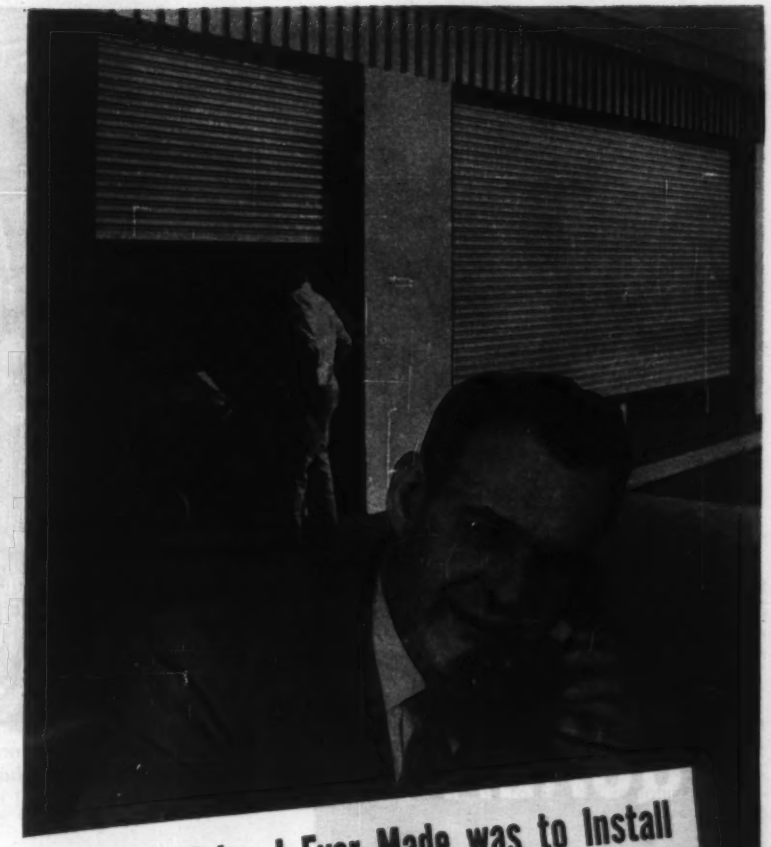
Erie Sand argued that since pit, bank and lake sand are all used primarily to make concrete, all compete with each other. It also said the market area described by the examiner is not a "section of the country" under the law.

Both arguments were rejected. The examiner said bank and pit sand are not competitive with lake sand. He cited the finer quality of lake sand and said the "prohibitive hauling expense" of shipping bank and pit sand into the lake-sand area would make them more expensive than lake sand. A demand exists for lake sand which the pit product cannot satisfy, he added.

The weight of the product in relation to its price and the preference of buyers for lake sand "effectively separate the sand produced in the lakeshore area from the sand produced inland," according to the examiner.

These facts "create a natural market for lake sand within a naturally defined area which obviously can only be served a 'section of the country' within the meaning of the law," he said.

Also a factor in the ruling was a post-acquisition price boost by Erie Sand and Gravel. The examiner said the hike "resulted from Erie's newly acquired dominance in the market, rather than from a business or economic necessity.

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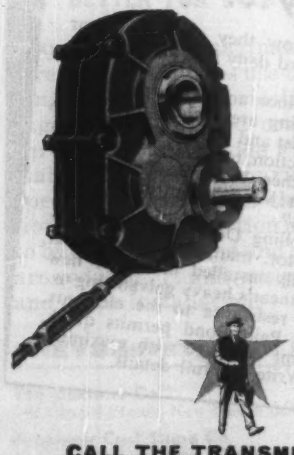

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**1958 Bargaining: Here's What It Did:**

- Added 15 cents to the basic wage scales of construction workers
- Improved and extended fringe benefits
- Promoted the trend to long-term contracts
- Set the stage for a repeat performance in 1959, but . . .
- Made a start toward reducing indirect labor costs

# The Stage Is Set for 1959

Contractors and unions engaged in collective bargaining are barreling along on a limited-access highway with the nearest exit still beyond the horizon.

So far this year they have boosted construction wages another 15 cents an hour, pushing the industry's average hourly wage scale up to $3.34 and giving building tradesmen in many areas straight-time pay of $4.00 or more an hour. This is exclusive of fringe benefits that continue to increase both in size and number.

This upward thrust to labor rates occurred in the face of mounting alarm over rising labor costs. But the big question—will we price ourselves out of the market?—became academic. And efforts to curb labor costs were channeled into the nebulous field of indirect labor costs.

**The result is that 1958 bargaining has set the stage for wage increases of similar size next year** (see p. 40).

• **Current increases**—Biggest hurdle contractors have to face in next year's bargaining is the simple fact that neither this year's recession, nor wage freeze talk, nor resistance in the form of lockouts and strike acceptance, nor demands for a full day's work for a full day's pay—none of these made much of a dent.

The most popular settlement figure this year was 15 cents an hour, according to reports to ENR. Next most popular settlements, in order of the frequency, were 10, 12½ and 20 cents.

The biggest gain was made by electrical workers (see next page). Least spectacular increases went to laborers and teamsters, whose members are less skilled than those of other construction unions.

Sectionally, workers on the West Coast received by far the highest pay hikes—an average of 19.9 cents an hour. Wage increases for building tradesmen in other parts of the country deviated only slightly from the national average.

Canadian workers fared better in 1958 bargaining than their brothers south of the border. Their average hourly wage increase, according to ENR reports, was 17.3 cents. But their resulting average wage scale of $2.71 is considerably lower than the U. S. scale and the larger gain seems to be part of the ubiquitously popular union trend of "catching up."

• **Long-term contracts**—Long-term contracts, which tend to perpetuate the upward trend of labor costs, were negotiated in more than half the 1958 settlements (see p. 130). Bulk of these were two-year contracts. Settlements for longer than three years were few and scattered.

An analysis of the contracts indicates they cost contractors less than one-year contracts do. The sum of deferred wage increases under a typical two-year contract, for example, is smaller than the sum of pay boosts that are apt to result under two successive one-year contracts.

This year, the average wage increase under one-year contracts was 15.5 cents. But the average 1958 increase under newly negotiated, long-term contracts was 14.5 cents.

Average 1959 deferred wage increase in the new long-term contracts is 13.7 cents; in 1960 it will be 12.6 cents. The 1959 deferred increase of 13.7 cents is the same as the average deferred wage increase under pre-1958 long-term contracts.

These figures are significant for several reasons.

The deferred increases that became automatically due in 1958 set a pay boost floor for 1958 bargaining, which ended with an average increase of 15 cents. The same springboard exists for 1959 and the results are apt to be the same.

The presence of automatic increases also militates, as it did this year, against any voluntary curbs on wage increases. Few will give up what they have won and others want what others get.

• **Some trends**—Three trends worth watching, in addition to long-term contracts, emerged in 1958 bargaining. They relate to area or regional bargaining, installment payment of annual wage increases and fringe benefits.

A union effort to standardize rates within a given area was noticeable in some localities. This means area-wide bargaining and presents an organizational challenge to contractors generally.

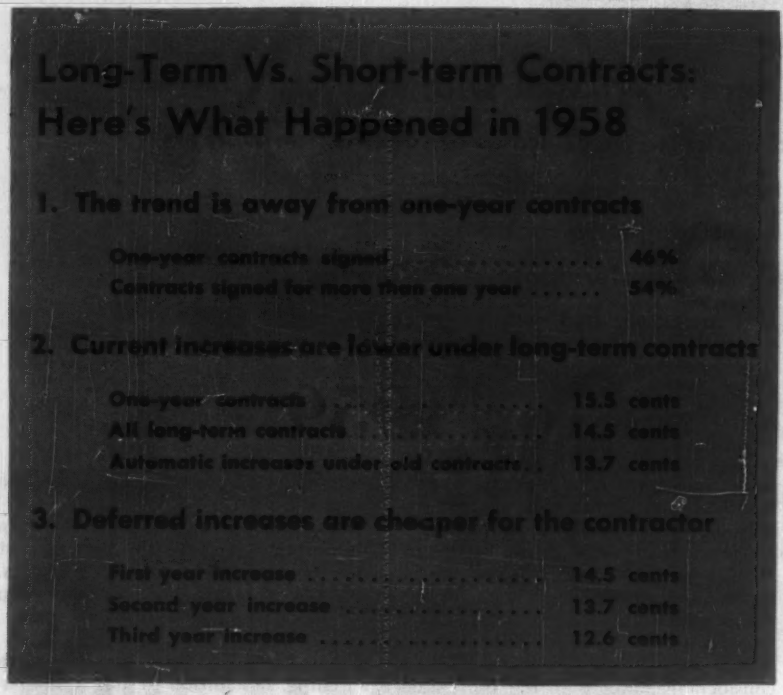
Carpenters in three New Hampshire counties, for example, negotiated three-year contracts. Annual wage increases were so rigged that all carpenters in the three-county area will be earning the same pay—$3.27 an hour—when the third deferred wage increase becomes effective in 1960. Substantially the same thing on a broader scale happened in iron worker negotiations in upstate New York.

A sustained interest in installment payment of annual wage increases was also evident. For contractors, this means a saving in labor costs because there is always a gain of a few months before the higher rate becomes effective. Use of the device occurred more frequently in long-term contracts than in one-year agreements.

Fringe benefits, which represent labor's drive for security and equality, remained a popular issue throughout 1958.

Health and welfare benefits received the most attention.

But pension, vacation, paid holiday and apprentice training funds were im-


Long-Term Vs. Short-term Contracts: Here's What Happened in 1958
1. The trend is away from one-year contracts
One-year contracts signed ..... 46%
Contracts signed for more than one year ..... 54%
2. Current increases are lower under long-term contracts
One-year contracts ..... 15.5 cents
All long-term contracts ..... 14.5 cents
Automatic increases under old contracts .. 13.7 cents
3. Deferred increases are cheaper for the contractor
First year increase ..... 14.5 cents
Second year increase ..... 13.7 cents
Third year increase ..... 12.6 cents

proved or established in many cases.

Interest in vacations was so keen in one area that the local industry will shut down for a one-week vacation for all workers beginning next summer; in another area, one trade gave up two paid holidays for a vacation plan.

It is difficult to draw any conclusions on the method of computing employer contributions for fringe benefits.

Some new contracts do initiate use of the percentage of base pay method, as opposed to a flat sum per hour, and others carry this system over from the past. In these cases, contractors have effectively agreed to fringe escalation, which means automatically higher fringe costs with every basic rate hike.

• On the negative side, this year's negotiations indicated a widespread lack of interest in escalation clauses tying wages to the cost of living.

• Little, if anything, appears to have been done in the direction of uniform contract expiration dates or off-season bargaining.

• The collective bargaining plight of homebuilders was not materially eased.

• Efforts to promote voluntary settlement of jurisdictional disputes through the National Joint Board were not apparent.

• Safety was not a significant issue.

• **Strikes**—About 28% of the 1958 agreements reported to ENR were signed after workers walked off their jobs. Some were brief, others lasted for months. Longest one recorded by ENR was a five-month iron workers' strike in western Texas.

Most of the strikes were over wage demands. Fringe benefits, seniority, travel allowances, featherbedding, hiring hall procedures, starting time and show-up pay played a role in others.

Lockouts, which were a part of the strike picture, appeared to be on the upswing. Areas in which contractors resorted to this as a defense to union whipsawing included Louisville, parts of New Jersey, Lake County (Indiana), Cleveland and Toronto.

• **An awakening**—The effectiveness of contractor resistance to union demands cannot be measured. Although it appears to have had little success in curbing the rapid rise in direct labor costs, it did succeed in focusing widespread attention on three significant questions: Where are we headed? Are we going too fast? Is labor giving as much as it is paid for?

These were some of the questions raised by Richard Gray's wage freeze proposal and by efforts of the international building trades unions to promote worker reduction of unnecessary costs on construction jobs. And they were part and parcel of the problems that flowed from the recession, from use of substitute materials and from production worker performance of industrial construction work.

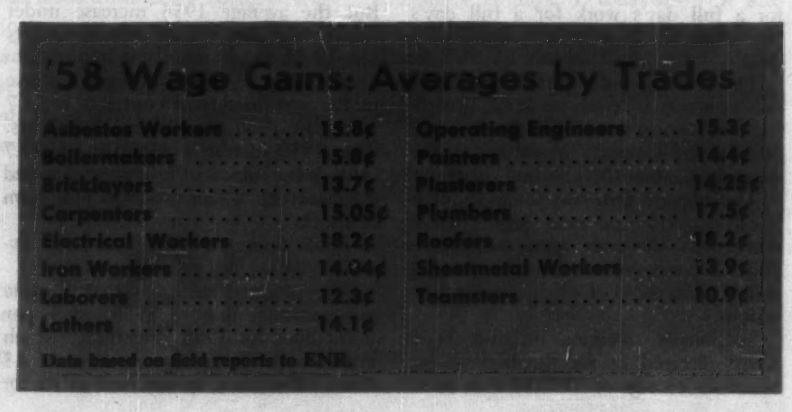
Despite notable efforts to face these problems in Cleveland, New Jersey, Chicago, Milwaukee and the West Coast, little was accomplished aside from isolated acceptance of the "Ten Commandments," in whole or in part. The commandments represent a 10-point code, recommended by labor at the national level, for the elimination of wasteful work practices.

The important thing, the record indicates, is that this year's bargaining did set in motion, for both contractors and unions, the long, slow process of labor cost analysis and education—a process that may pay bigger dividends in future bargaining.

One hopeful sign is this recent comment by the business manager of the Cleveland Building and Construction Trades Council (AFL-CIO):

"It seems to me that we have reached a point in our economy where it behooves both labor and management to do everything within their combined power to effect economies in our industry. We in the labor end of this partnership cannot continue to take from the industry without putting our fair share into it. . . . It's time to take inventory. Unless some changes take place fast, some of our members are going to be union men in name only."

(*Labor continued on page 132*)



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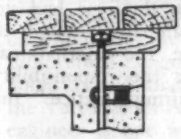

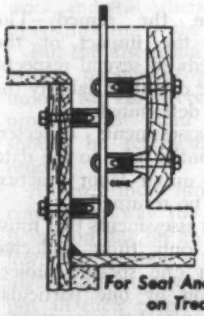

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# Union Victory for Professionals

## Supreme Court rules right of professional engineers to separate representation must be protected by courts

A National Labor Relations Board decision as to what constitutes an appropriate unit for union representation election purposes may be reviewed by a federal court.

The ruling was handed down last week by the U. S. Supreme Court in a case involving professional engineers at a New York plant of Westinghouse Corp.

The case represents a victory for Engineers and Scientists of America, which is a national federation of unions for professional engineers, and imposes an additional curb on the discretionary powers of the labor board. But it may complicate labor relations generally by allowing a greater number of labor disputes to be thrown into protracted litigation.

• **Issue**—The issue in the Westinghouse case was whether the NLRB has the power to set up a voting unit containing both professional and nonprofessional workers when the professionals object to the inclusion of nonprofessionals.

Under the law, professional employees seeking union representation have the right to vote as a professional unit for or against a particular union. This means, if the right is exercised, that the union winning the election will not be representing nonprofessional workers against the wishes of the professional members. ESA exclusively embraces professional workers and the court's decision is therefore another milestone in its union progress.

• **Facts**—The board, in the Westinghouse case, had thrown 233 professionals and nine nonprofessionals into the same voting unit over the protests of the professionals. It said its right to do so was discretionary. The only limitation on its discretion, it contended, is that it keep the voting unit "predominantly" professional.

An officer of the local union, an ESA affiliate seeking the election, accused the board of abusing its powers and asked a federal district court to order the NLRB to set up a separate election to determine whether the professional employees wanted to be included with nonprofessionals in the same bargaining unit.

The district court and an appellate court agreed with the local union. But the labor board took the position that neither court had the power to review this kind of a labor board proceeding. Ordinarily, court appeals are limited to cases of unfair labor practices.

• **Decision**—The Supreme Court, in a split decision, disagreed with the board.

Speaking for the majority, Justice Whitaker said that the board's refusal to allow a separate election was "an attempted exercise of power that had been specifically withheld."

"Where, as here," he continued, "Congress has given a right to the professional employees, it must be held that it intended that right to be enforced and the courts encounter no difficulty in fulfilling its purpose."

Two dissenting members of the court —Justices Brennan and Frankfurter— viewed the result with alarm.

They said it opens a gaping hole in the Congressional wall against direct resort to the courts and will immerse collective bargaining in the inevitable confusion of litigation. They felt it gives both unions and management a new kind of delaying tactic in labor relations.

"I fear that today the court fashions a major setback for the goals of national labor policy," Mr. Brennan said, "at least until the Congress enacts new language to express a will which I think is already crystal clear."

# The Law on Hiring Unfolds

## Labor board gives contractors a break and international unions a jolt in its application of Brown-Olds remedy

A contractor who agrees to and participates in closed shop hiring practices may escape the penalties of the law simply because he is not named in the unfair labor practice charge that takes the case to the National Labor Relations Board.

Conversely, an international union, although not a party to the illegal labor contract that establishes the forbidden hiring practices, may incur the penalties of the law on the grounds that its constitution requires the offending affiliated local union to engage in the illegal practice.

These two principles have emerged in the NLRB's case-by-case application of the Brown-Olds remedy to construction industry violations of the Taft-Hartley Act ban against closed shops.

• **Union liability**—The international union that got into trouble earlier this month was the United Brotherhood of Carpenters.

A labor contract between a Texas carpenters local union and two contractor associations required millwright foremen to be members of the union and gave the foremen sole authority to hire and fire millwrights under them.

Union policy required the foremen to hire only members of the union. A closed shop situation resulted, to which the NLRB said the contractors had "in effect" agreed.

The international union's liability for the illegal hiring practice, the board said, rested on a union constitutional provision that requires "members who become foremen" to comply with the union rules and "hire none but members of the United Brotherhood."

Since the local union and the District Council involved in the case had no choice, as union affiliates, except to follow the mandate, the international union must "share the responsibility for the unlawful hiring practice," the board concluded.

• **Limitations on the remedy**—The board restricted the impact of the Brown-Olds remedy in several respects.

In deciding the extent of liability the board made these determinations:

• Dues and assessments collected more than six months prior to the date of the amended unfair labor practice charge need not be returned.

• The dues and assessments that must be returned are only those collected from workers on one specific project under construction by one particular member of the contractor association.

The second limitation is significant because some observers feel that a violation by one association member under an association-wide contract will make all association members or the association liable. The reason NLRB declined to extend the remedy to other employers or projects, it said, was lack of evidence that "exactly the same conditions" existed elsewhere.

The particular contractor concerned was not named as a defendant in the unfair labor practice charge that was filed. It therefore escaped the repayment penalty.

# Engineers' Unions Seek Unity

## New York union leaders agree to work collectively for common goals, despite discord on basic philosophy

Unity among engineers isn't the goal of profesional societies alone. Engineering unions are also trying to find the way.

Now the leaders of unions and sounding boards in the New York metropolitan area are apparently concluding that some goals can be more easily achieved by collective action.

**Last week, a group of engineers active in the union movement met to discuss this question: Can engineering unity be attained despite organizational differences? But the merits of unionization and of inter-union cooperation became the real issues.**

They agreed their common aims were 1) to gain more respect and recognition for the professional engineer and 2) to better him economically. They endorsed the idea of unity and agreed to exchange information they gather about salary scales, merit rating systems, medical and pension plans and similar economic problems.

• **Some confusion**—But they disagreed on whom they are uniting. "What is a professional engineer?", they asked. Some argued that he is described in the Taft-Hartley Act; others claimed an engineer is one who does engineering work; and still others named experience in engineering as the prerequisite.

**But the discussion failed to solve one of the paramount problems faced by unions for engineers. That is whether professionals and nonprofessionals should be represented by the same union.**

An even more fundamental point of contention was the effect union participation has on an engineer. Will it lower an engineer's professional standing? Will engineering unions tend to put all their members on a par, as in labor unions, and destroy the individual's desire to excel?

Inability to resolve these questions, and other basic ones, may prove to be a big impediment to growth in the engineering union movement.

• **Some answers**—A spokesman for an affiliate of the United Auto Workers (AFL-CIO), which has unionized some engineers, gave this advice to the group: When engineers can decide which of their two common aims—economic and professional advancement—is the more immediate, then they will more easily find the direction in which to travel. The first step necessary to solve the problems of employed engineers is simple—unionize, he declared.

Julius Manson, executive director of the New York State Board of Mediation, said: In fulfilling the goal of economic betterment, engineers will find their desire for more recognition and respect as professionals will also be satisfied.

Represented at last week's meeting were: Engineers Association (Sperry Gyroscope); Conference of Professional and Technical Personnel (Bell Laboratories sounding board unit); Greer Hydraulics Unit and Otis Elevator Unit, Local 365, United Auto Workers (AFL-CIO); and the Consolidated Edison Forum.

# Craft Unions Hit

## Oil workers fan flames of labor's jurisdictional strife

The jurisdictional conflict between craft and industrial unions in the AFL-CIO flared up again last week.

This time, O. A. Knight, president of the Oil, Chemical and Atomic Workers Union, accused the building trades unions of invading its jurisdiction and charged that the National Constructors Association is abetting the trespass.

The charges were contained in detailed complaints filed by the union with a special committee of the AFL-CIO Executive Council.

The two-man committee, which includes building tradesman Joseph D. Keenan of the electrical workers union, is investigating an industrial union charge that the Metal Trades Department is engaging in organizational activities that violate federation law.

• **Charge**—Mr. Knight says the building trades unions are causing OCAW members to lose their jobs.

He charges the craft unions with refusal to "respect an agreement to stay out of production and running maintenance work which has long been within the jurisdiction of our union."

"Individual craft unions affiliated with both the metal trades and the building trades", he says, "are attempting, as individual unions, to secure jurisdiction over running maintenance work in violation" of an agreement pur-


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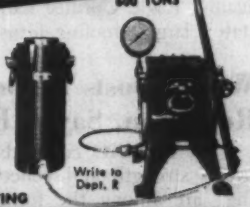

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portedly reached by craft and industrial unions last February. The pact to which Mr. Knight refers is known as the "Miami Agreement" for the settlement of jurisdictional disputes. It has never been implemented.

• **A complaint**—A major complaint of Mr. Knight is the existence of a national labor contract between the National Constructors Association and the plumbers union.

"Since that agreement was signed," he says, "we have had numerous complaints from various OCAW local unions throughout the United States over the fact that agreements are being entered into by the building trades unions and various contractors such as the Catalytic Construction Co. to do all types of running maintenance work within oil and chemical plants.

## Minimum Wage Violations Charged to Roofing Firm

A Providence roofing firm has been charged with civil contempt of a federal court injunction ordering it to pay minimum wages of $1.00 an hour to all its 30 employees.

The injunction was obtained last June under the Fair Labor Standards Act, which many mistakenly feel is no concern of construction because its wage levels are so high.

The contempt citation is being sought by the U. S. Department of Labor against Eagle Cornice Co., one of the state's largest roofing firms.

## Wage Boosts Helped Check Recession, Says AFL-CIO

The AFL-CIO contends that "trade union strength and collective bargaining" are among the forces that "prevented the recession from developing into a full blown depression."

In the last issue of its "Economic Trends and Outlook," the federation says that wage increases won by workers "during the months of declining output and jobs" bolstered consumer income enough to prevent a sharp drop in retail sales. Such a drop, it asserts, could have "touched off a downward spiral."

This is the argument that killed last year's wage-freeze proposal of building trades president Richard J. Gray.

The AFL-CIO claims that wage and salary increases "offset almost two-thirds of the decline in total income that would have otherwise resulted from layoffs and cutbacks in working hours between August 1957 and June 1958."

# OFFICIAL PROPOSALS

Bids: January 13, 1959

### Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS

For Construction of Additional Access Road, Utilities, Boat Facilities and Site Development on Barnhart Island near Massena, St. Lawrence County, New York
Specifications No. PA-5-11045
St. Lawrence Contract No. 51

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for Construction of Additional Access Road, Utilities, Boat Facilities, and Site Development on Barnhart Island, near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Standard Time on the 13th day of January, 1959, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantities of the principal items of work are as follows:

| | |
|---|---|
| Excavation, unclassified | 9,000 cu. yds. |
| Embankments | 10,600 cu. yds. |
| Foundation course gravel | 3,370 cu. yds. |
| Asphaltic concrete pavements | 310 cu. yds. |
| Reinforced concrete | 186 cu. yds. |
| Concrete terraces | 370 sq. yds. |
| Water supply well | 180 lin. ft. |
| Topsoiling and seeding | 3.2 acres |
| Floating dock and ramp | 1 each |

All work shall be completed on or before August 1, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars $(5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

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Bids: January 20, 1959

### Contract NA-470.003

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTROL TOWER
LIGHTING CONTROL PANEL AND WIRING

Sealed proposals for furnishing and installing a field lighting control panel and terminal cabinets in the Control Tower, together with wiring to the switch house, all at Newark Airport, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 20, 1959, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 25, 1958

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Bids: January 13, 1959

### Contract NYA-650.070

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CENTRAL HEATING AND REFRIGERATION PLANT
MODIFICATION TO SPRINKLER SYSTEM IN COOLING TOWERS

Sealed proposals for the performance of alterations to the sprinkler system in the cooling towers for the central heating and refrigeration plant in the Central Terminal Area at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 13, 1959, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 25, 1958

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### U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5132) will be received at Denver, Colorado, until January 22, 1959, for furnishing one (1) 10 by 20-foot fixed wheel gate for the outlet works at Trinity Dam, Central Valley Project, California. Delivery is desired within 360 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

**Engineering News-Record**

**Reaches Your Local Contractors**

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

**OFFICIAL PROPOSALS** enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

# OFFICIAL PROPOSALS

*RATE:* The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

*CLOSING DATE:* Friday 10:30 A.M. for issue dated the following Thursday.

*SEND COPY TO:* Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: January 27, 1959

## McKeesport Sewage Treatment Project

Sealed proposals will be received by the Municipal Authority Of The City Of McKeesport, 201 National Bank Building, Fifth Avenue and Sinclair Street, McKeesport, Pa. until 10:00 A.M., Eastern Standard Time, January 27, 1959, and will be publicly opened and read shortly thereafter in the City Council Chamber on the sixth floor of the Peoples Union Bank Building, Fifth and Walnut Streets, McKeesport, Pa.

Separate proposals will be received upon nine (9) parts of the project as hereinafter indicated. Each proposal shall be accompanied by a certified check or Bid Bond in an amount not less than ten (10) per cent of the bid total.

Copies of the Contract Documents may be seen at, and obtained from the office of Gannett Fleming Corddry and Carpenter, Inc., (P. O. Box 5073) Pittsburgh 6, Pa.; they may also be seen at (but not obtained) at their office at 600 North Second Street, Harrisburg, Pa., and at the office of the Municipal Authority Of The City Of McKeesport, 201 National Bank Building, McKeesport, Pa. No more than two (2) sets of any particular contract may be obtained by a prospective bidder. A deposit of the amounts indicated below will be required for each set. Deposit checks shall be made payable to Gannett Fleming Corddry and Carpenter, Inc.

Contract One—CONSTRUCTION OF INTERCEPTING SEWERS, SEWAGE REGULATORS, FORCE MAINS, SIPHONS AND APPURTENANCES. $60.00
(Part A) Construction of the Upper Monongahela River Interceptor, Sewage Regulators and Appurtenances.
(Part B) Construction of the Lower Monongahela River Interceptor, Sewage Regulators, Force Mains, Siphon, and Appurtenances.
(Part C) Construction of the Youghiogheny River Interceptor, Sewage Regulators, Force Mains, Siphon, and Appurtenances.
(Part D) Construction of the Long Run Interceptor and Appurtenances.

Contract Two—GENERAL CONSTRUCTION OF SEWAGE TREATMENT PLANT, OUTFALL SEWER, ROADS, PUMPING STATIONS AND APPURTENANCES ..... $60.00

Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS..... $25.00

Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS..... $25.00

Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS..... $25.00

Contract Six—EQUIPMENT AND PIPING IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS ..... $60.00

Full refund will be made (only to actual bidders on the six (6) prime contracts noted above) for return of one (1) set, no more, of a particular contract in good condition within fifteen (15) calendar days after closing date for receipt of bids; refund for return of all other sets in good condition within the same period, will be fifty (50) per cent of deposit. No refund will be made for Contract Documents returned later than fifteen (15) calendar days after date of receipt of bids.

A Bidder may submit proposals on any or all of the four (4) parts of Contract One.

Bidders offering separate proposals for Contracts Two and Six, or for Contracts Three, Four, and Six, may also submit combination proposals for Contracts Two and Six, or for Contracts Three, Four, and Six, respectively.

THE MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT,
Gannett Fleming Corddry and Carpenter, Inc., Engineers.

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Bids: January 27, 1959

## Contract PN-560.004

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BUILDINGS NOS. 197, 198, 261 & 262

Sealed proposals for the construction of four cargo distribution buildings at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 27, 1959, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115 on or after January 2, 1959. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 25, 1958

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Bids: January 15, 1959

## Municipal Building City of Grosse Pointe Woods, Michigan

Sealed bids for the erection and completion of the Administration wing and the Council-Court Room wing of the proposed Municipal Building to be located at 20025 Mack Avenue in the City of Grosse Pointe Woods, Michigan will be received until 3:00 o'clock P.M., E.S.T. on Thursday, January 15, 1959 at the Office of the City Clerk, City of Grosse Pointe Woods 36, Michigan, at which time and place they will be publicly opened and read aloud.

Plans and specifications may be obtained at the offices of the Architects and Engineers; Malcomson, Fowler & Hammond, Inc., Architects, 1217 Griswold Street, Detroit 26, Michigan and Snyder & McLean, Inc., Engineers, 18461 West McNichols Road, Detroit 19, Michigan, and may be inspected at the Municipal Building, 20775 Mack Avenue, Grosse Pointe Woods, Michigan.

PROPOSALS MUST BE SUBMITTED ON FORMS FURNISHED BY THE ARCHITECTS AND ENGINEERS.

All Bids submitted will remain firm for a period of thirty (30) days after the official opening of Bids. The City of Grosse Pointe Woods reserves the right to reject any and all Bids, in whole or in part, to waive any informalities in the bidding, and to accept any bid it deems to be in the best interest of the City.

CITY OF GROSSE POINTE WOODS
LEONA D. LIDDLE
City Clerk

Bids: February 6, 1959

## Directorate of Highways Ministry of Public Works and Communications Republic of Honduras

ADVERTISEMENT FOR BIDS
for
Highway and Bridges
Route No. 18—West Road Between Santa Rosa de Copán and Chamelecón
CONTRACT No. 503-C(M)

Sealed Proposals for the above noted contract described herein will be received by the Director General of Highways at the Offices of the Ministry of Communications and Public Works, Tegucigalpa, Honduras, until 10 a.m. Honduras Official Time on February 6th, 1959 and then publicly opened.

The work to be done under this Contract shall be commenced on the date specified in the Notice to Proceed, or such earlier date mutually agreed upon by the Ministry and the Contractor. All work under the Contract shall be completed within 730 calendar days after such date, and consists of furnishing all plant, labor, materials, and equipment, and performing all work in strict accordance with the Specifications, Schedules and Drawings forming parts thereof, for the construction of portions of the West Road, (Route No. 18), between Santa Rosa de Copán and Chamelecón.

Proposals shall be submitted covering all the work on the West Road, (Route No. 18), between Santa Rosa de Copán and Chamelecón, as delineated on the Unit Price Schedule Form.

The approximate quantities of the principal items of work are:

| | |
|---|---|
| Unclassified Excavation | 1,350,000 CM |
| Sub-base | 52,000 CM |
| Reinforcing Steel | 1,700,000 LBS |
| Structure Concrete | 9,800 CM |
| Untreated Timber Piles | 23,000 LM |

Prospective bidders can obtain copies of the plans, specifications and contract documents for a fee of 200 Lempiras from the Office of the Director General of Highways, Tegucigalpa, Honduras. A Contractor's Financial Statement and Experience Questionnaire and a Plan and Equipment Questionnaire on forms supplied by the Directorate of Highways will be required of all bidders. All proposals must be on the forms prescribed by the Directorate of Highways and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of ten (10) percent of the total amount shown in the Proposal Form Unit Price Schedule in the form and manner specified in the Instructions to Bidders.

Individuals or firms doing business under fictitious names and all foreign corporations shall register with the Ministry of Communications and Public Works, Tegucigalpa, Honduras, before any proposals submitted by such corporations, individuals or firms will be considered.

Award of the above contract, if any award be made, will be to the lowest responsible bidder or bidders. The Government reserves the right to reject any and all proposals and further reserves the right to waive any informality in proposals received when such rejection or waiver is in the best interest of the Government.

The Government of Honduras has entered into a Loan Agreement with the International Bank for Reconstruction and Development for a loan in various currencies to finance the foreign exchange costs of a Highway Construction Project of which this contract will form a part. The Government of Honduras has also entered into a Loan Agreement with the Development Loan Fund of the United States Government for a loan to finance the local currency costs of the Project.

DIRECTOR GENERAL OF HIGHWAYS
December 11th, 1958

# EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

**DISPLAYED RATE:**

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

**JANUARY 8th ISSUE CLOSES DECEMBER 29th**

**UNDISPLAYED RATE:**

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

*Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.*

*ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.*
*NEW YORK 36: P. O. BOX 12*
*CHICAGO 11: 520 N. Michigan Ave.*
*SAN FRANCISCO 4: 68 Post St.*

## • POSITIONS VACANT

**Assist. Prof.—To teach undergrad. courses** in structures and mechanics. Salary open. Civil Eng., Univ. of No. Dak., Grand Forks.

**Electronic Computer Application Engineer** Wanted. Midwestern consulting Engineering firm needs graduate engineer experienced in electronic computer application to engineering problems. Reply in detail to P-9211, Engineering News-Record.

**Projects Manager wanted for position with** expanding general contracting firm with home office in Ohio; specializing in industrial, commercial, and public works. Top level management position for man experienced in organizing and managing jobs of considerable magnitude; extensively experienced in expediting, estimating, pricing, purchasing, and dealing with sub-contractors and owners. Must be ambitious, have intense initiative, and be willing to travel. Prefer a graduate engineer or equivalent. If you are lookinng for a permanent position with an aggressive concern, where you can exercise your abilities, and be well compensated for same, send complete history, including education, past experience, references, salary expected, and photograph, if available, to P-9495, Engineering News-Record. All replies will be held in confidence and promptly answered.

**Wanted Architectural Draftsman with 2 or** more years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8590, Engineering News-Record.

**Experienced Sanitary Engineer—desired by** well-established consulting firm. Must be capable of preparing designs, checking shop drawings, etc., for sewage treatment plants. Location, Maryland. Salary, open. All replies kept confidential. Send resume of qualifications to P-9448, Engineering News-Record.

**Wanted Registered Architect with 4 or more** years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8615, Engineering News-Record.

**Civil Engineer-experience and ability in de**sign of sewers-sewerage treatment plant. State educational background, experience and salary desired. P-9576, Engineering News-Record.

**Structural steel designer and estimater, in**dustrial and miscellaneous steel structures, steel plate fabrication. Graduate engineer, 30-40, minimum 5 years design experience. Permanent employment, paid vacations, group insurance plan, good schools. Excellent optunity. Location Mid-Continent. Reply fully, giving resume of experience, education, age and salary requirements to P-9557, Engineering News-Record.

## • EMPLOYMENT SERVICE

**Better Positions—$6,000 to $35,000. Want** a substantial salary increase, more opportunity or different location? This national 48 year old service connects you with best openings. You pay us only nominal fee for negotiations: This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo, N. Y.

## STRUCTURAL STEEL DESIGNERS & ESTIMATORS

Wanted immediately. Must be experienced and have good personality. Opportunity to be branch office manager. Prefer man in forties.

This leading Southern company has plants located in six cities.

Replies will be held in confidence. Interviews arranged with qualified applicants.

Please send complete resume to

P-9454, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## • POSITIONS WANTED

**Const. Supt. 25 yrs experience in commercial** buildings. Available now. PW-9328, Engineering News-Record.

**Prestressed Concrete Plant Manager or Super**intendent BCE. 30. 8 years heavy construction experience in supervisory capacity including 4 years as Field Engineer, Plant Supt. and Plant Manager with major firm engaged in manufacture and installation of prestressed concrete structures. Desire locate in South or West Coast. PW-9425, Engineering News-Record.

**Concrete Inspector, Canadian, recent immi**grant. Age 30, 10 years experience in hydroelectric and heavy industrial concrete inspection. Member A.C.I. & A.S.T.M. Excel. references. Experienced all phases of control and construction. PW-9472. Engineering News-Record.

**Chief Estimator—Graduate civil engineer, 35** years old. Responsible for estimates on multimillion dollar projects, buildings, sewage treatment plants, power houses, bridges. Careful, judicious buyer. PW-9446, Engineering News-Record.

**Structural designer, 20 yrs. exp. on various** steel & concrete structures. Four years on bridges. Cornell grad. East or mid-west. PW-9445, Engineering News-Record.

**Construction Superintendent-Civil Engineer** Thirty years varied experience embracing all phases of Engineering Construction and design-earthwork, municipal projects, refineries and ptro-chemical plants, industrial buildings. Executive and administrative ability. Seeking challenging responsible position. Available after January 1st. Free to travel. Southern location preferred. PW-9521, Engineering News-Record.

**Contractors sup't. or engr. BSCE Highway** structures & paving. PW-9529, Engineering News-Record.

**Construction estimator-superintendent for** specialized non-building general construction. Must be capable of taking complete charge of operation. Based in Phila. Salary and percentage. Write PW-9546, Engineering News-Record.

## ERECTION ENGINEER

Large erection company requires graduate civil engineer with experience in design of erection equipment, guy derricks, towers, booms, etc. In addition would be required to prepare erection instructions and manuals. This position has an excellent future for man with ten to fifteen years experience. Send complete resume to

A. WOOLRICH
**GRAVER TANK AND MFG. CO., INC.**
EAST CHICAGO, INDIANA

## • POSITIONS WANTED

**Field Office Engineer—Estimator, 26, BSCE,** heavy construction experience. Desires position with gen'l contractor. N. Y. Area. PW-9499, Engineering News-Record.

**Construction Project Manager, Graduate En**gineer, Age 41, 20 years industrial experience. Organization, co-ordination and construction of complete refinery and chemical plant installations. Have following of one or more complete job organizations, experienced field supervisors, office warehouse, etc. Foreign assignment preferred. Will relocate. Top salary expected. Available March 1st. PW-9541, Engineering News-Record.

**Engineering Designer, Specification Writer,** Draftsman. Chemical plant layout, piping design, waterworks and sewage treatment plant contracts and specifications, trade journal articles. B.S., Chem. Eng., M.I.T. Age 44. Met. N.Y. area. PW-9555, Engineering News-Record.

**Civil Engineer, 24, BCE. Experience in struc**tural design, bridges & industrial, and in manufacture of precast-prestressed concrete. PW-9573, Engneering News-Record.

**Resident Engineer—Supervision of Construc**tion large industrial projects. Presently employed overseas. Desires change of location 20 years overseas. Resume on request. Available January. PW-9577, Engineering News-Record.

*When Answering*
BOX NUMBERS...

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

## POWER PLANT SUPERINTENDENT

A long-established Canadian electric utility company, presently building a steam-electric generating plant, designed for ultimate capacity over 750,000 kilowatts, to burn oil or natural gas or mixed fluid fuels, requires a Plant Superintendent to take charge.

Preference will be given to applicants eligible for registration as Professional Engineer in Mechanical Engineering. At least ten years' responsible experience in operation and maintenance of large steam plants will be required.

Salary open, depending on qualifications and experience. First-class living, social, and recreational amenities both urban and rural within twenty miles motoring distance. Modern pension plan, medical coverage, other Company benefits.

Appointment will be made preferably by April 1959 and will require assumption of duties at site not later than 30 June, 1959. Initial responsibility will include inspection of construction, assembly and test.

Reply by letter in confidence giving full particulars of personal history, education, and experience to:

**STEVENSON & KELLOGG, LTD.**
Consulting Management Engineering
10 Eglinton Avenue E., Toronto, Ontario

## ESTIMATOR-ENGINEER WANTED

A fine job opportunity for a young engineer with estimating experience. Opportunity includes estimating, job expediting, checking shop drawings and some design.

Southern New England Contracting Co.
66 Sanford Street Hartford, Connecticut

*WANTED*

## ESTIMATING ENGINEER

Midwestern consulting engineering firm needs engineer with estimating experience for contractors and with consulting experience to organize and head estimating.

P-9002, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## FOREIGN EMPLOYMENT

### DISTRICT INDUSTRIAL ENGINEER

BS or MS Degree Industrial or Mechanical Engineering with post graduate studies production control, tool design, material handling, industrial psychology, etc. Practical industrial experience required with at least 2 years supervisory capacity in fabricating industry. Experience as machinist or tool maker desirable.

### SMELTER ENGINEER

BS Degree in Metallurgical, Mechanical or Civil Engineering. At least 5 years experience required in pyrometallurgical industry, preferably copper smelting, 2 years of which should have been in supervisory position.

### ASSISTANT MILL METALLURGIST

BS Degree Metallurgy from recognized School of Mines and Metallurgy, also basic knowledge inorganic and organic Chemistry. Should know Spanish or be able and willing to learn it quickly, also 3 years experience required in operation of milling plants, using crushing, grinding, and froth flotation including some practice in testing methods.

*Excellent opportunity large copper company Chile, South America. 2 year contract with transportation both ways and salary while traveling paid by Company. In reply give complete details.*

P-9559, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

## ENGINEERS

**PERMANENT OPENINGS FOR QUALIFIED MEN EXPERIENCED IN THE DESIGN OR SPECIFICATIONS FOR**

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**BUILDINGS**
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**RAILROADS**

PREFER GRADUATE REGISTERED ENGINEERS WHO SEEK LONG RANGE EMPLOYMENT WITH AMPLE OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND ADVANCEMENT IN A STEADILY EXPANDING AND GROWING ORGANIZATION.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Work will be in the general offices in St. Louis. Interviews can be arranged in Washington, D. C., and San Francisco also.

*Please write fully, including salary data, to*

**SVERDRUP & PARCEL, Inc.**
*ENGINEERS — ARCHITECTS*
915 Olive St. Louis 1, Mo.

## ENGINEERING DESIGN PERSONNEL

***Highway & Bridge Designers, Highway & Bridge Draftsmen***
**Openings in Pennsylvania, Ohio, Maryland & West Virginia**

*Career opportunities for individuals interested in professional recognition ample opportunity for advancement based on merit, plus employee retirement plan, group life insurance, hospitalization, paid vacation and holidays.*

*EXPERIENCE REQUIRED*

Mail Resume To F. W. AHERN, Personnel Director

**MICHAEL BAKER, JR., INC.** *Consulting Engineers*
Baker Building Phone: SPruce 4-3010 Rochester, Penna.

## RESIDENT ENGINEER

To supervise construction of 122 kilometer highway in Iraq. Fifteen years experience required. Excellent salary plus furnished house free for self and family. Approximately two to two and one half years term. Please send complete resume and specify salary required.

**HARZA ENGINEERING COMPANY**
400 W. Madison St., Chicago 6

## SENIOR BRIDGE CONSTRUCTION ENGINEER

**for work in**
**SOUTHEAST ASIA**

Senior engineer needed to complete technical party. Work involves supervision of construction of highway bridges in South Vietnam. High degree of initiative, judgment and skill in handling human relations required in addition to professional competence. Eighteen-month minimum employment agreement. Only those interested in difficult and challenging work shall apply.

Minimum 20 years experience required in this highly responsible position, including deep water foundations and steel erection. Age limit 65 years. Those willing to travel in single status will be given preference.

**CAPITOL ENGINEERING CORPORATION**
DILLSBURG, *CONSULTING ENGINEERS* PENNSYLVANIA

## SOILS ENGINEER

Long-established progressive company, known as a leader in stabilizing and dewatering excavations, offers permanent, rewarding research and development position on headquarters staff. You must have technological background and field experience in heavy construction work, with emphasis on ground-water seepage and pumping problems.

The position offers many employee benefits, liberal salary commensurate with ability. Please send resume of experience, etc. Replies held in confidence. Our staff knows of this ad.

P-9599, Engineering News-Record
520 N. Michigan, Chicago 11, Ill.

# SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

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The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

*UNDISPLAYED RATES*

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

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**CRANES FOR RENT**

CRAWLERS — Capacities to 60 tons, Booms to 160 ft.
TRUCK CRANES — Capacities to 35 tons, Booms to 130 ft.

P and H. Lima and Manitowoc.
Top-Condition erection cranes

**ROGER SHERMAN**
**CRANE SERVICE, INC.**
East Hartford, Connecticut JAckson 8-4106

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**LOCOMOTIVES & LOCOMOTIVE CRANES**

1—25 Ton Diesel Electric Locomotive
1—45 Ton G. E. Diesel Electric Locomotive
1—25 Ton Ohio Diesel Locomotive Crane
1—30 Ton Browning Diesel Locomotive Crane
1—25 Ton Bay City 190T61 Truck Crane

B. M. WEISS COMPANY
Girard Trust Bldg. Philadelphia 2, Pa.

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1201 Combination Shovel and Dragline. Serial No. 324613. Standard Shovel Front. Machine Completely Rebuilt. Nov. 1957 New Cummins R. L. Diesel Engine. Not used after being rebuilt. Price Comb. $40,000. Shovel Front only $4,500

McCarthy Horizontal Bank Drill. Self propelled New Engine, Machine Excellent Condition. Price $2,500.00

Compton Coal Auger Model 36 Serial No 7-1055-071-F 160 ft. 28" Augers. Excellent Condition. Price $30,000

Chicago—Pneumatic Air Compressor 110 C.F.M. Practically New. Price $1500.

Allis-Chalmers Road Patrol. Tandem drive Model A. D. 3. Good Condition. Price $1500. Located Portersville, Pennsylvania.

W. R. WINTERS c/o Laura Andreas
Room 930 Boatmens Bank Bldg.
314 North Broadway St. Louis, Mo.
Phone: Chestnut 14471

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*JUST COMPLETED*

**FULL REVOLVING FLOATING CRANE "HARBOLD"**

capacity 65 tons at 50' radius
boom 125' long
steam power, air controls
4 drum hoist
barge 110 x 48 x 8

FOR SALE, IMMEDIATE DELIVERY

HAVRE DE GRACE SHIPYARD, INC.
Havre De Grace, Maryland

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**WANTED**

First-class, experienced building Estimator for responsible position with established contractor. Salary commensurate with qualifications and responsibility.

J. M. ODOM, General Contractor
P. O. Box 774 Austin, Texas

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LOW COST INSTALLATION AND OPERATION

**CABLEWAYS**
IMMEDIATE SHIPMENT
ELECTRIC, STEAM or DIESEL
CAPACITY 3 TO 20 TONS
SELL, RENT or BUY

FOR DAMS, BRIDGES, BREAKWATERS, FILTRATION AND SEWERAGE PLANTS
FOR SPEED, ECONOMY, EFFICIENCY, FLOOD SAFETY, LABOR REDUCTION

AMBURSEN DAM CO. INC.
295 MADISON AVE. NEW YORK

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**LIDGERWOOD 3 DRUM STEAM HOIST**

Front drum, 42,000 lbs line pull. 2 rear drums, 35,000 lbs each line pull. Cylinders 12 inches by 12 inches. Price Right.

FS-9505, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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**SURVEYING INSTRUMENTS**

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**TRANSITS AND LEVELS**

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Sale or Rent

Headquarters for REPAIRS — any make — Factory Service. We will also buy your old instruments or take them in trade.

A complete line of Engineering Instruments and equipment for field or office. Write for catalog NLR 812.

**WARREN-KNIGHT CO.**
*Manufacturers of Transits and Levels*
136 No. 12th St., Philadelphia 7, Penna.

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**TRANSITS & LEVELS**
Various Makes
NEW & REBUILT

Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.

INSTRUMENTS RENTED

Midwest Representatives: W. & L. E. Gurley, Distributors—Electronics Scientific Instruments

**NATIONAL BLUE PRINT CO.**
Established 1911
210 S. Canal St. Chicago 6, Ill.

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**RE-BUILT REPAIRS RENT REAL EXPERTS**

BUFF

ALL MAKES

48 Day St., New York WOrth 2-2717

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• *CONTRACT WORK WANTED*

**Engineering group available for studies, design, detailing or contractor's services. CWW-9528, Engineering News-Record.**

• *SPECIAL SERVICES*

**General Drafting Service.—Valuable restorations capably redrawn. Efficient, accurate, dependable drafting service. P.O. Box 1886, Pittsburgh 30, Pa.**

• *OFFICE SPACE FOR RENT*

**B'way, 350—New York City. New light modern building, 8,600 sq ft. Ideal for Engineering concern, located near all transportation. Will subdivide to suit. WO-2-0230.**

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STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

**WILSON** *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

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TAMBLYN SYSTEM
1455 - 38th Ave., Dept. E,
Columbus, Nebraska

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Call: HYACINTH 7-4900

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ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE. BROOKLYN 37, N.Y.

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**PIPE**
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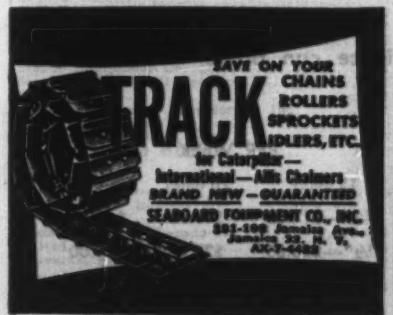


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Barber Greene Co. ..... 15
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Bell Bottom Foundation Co. ..... 99
Bethlehem Steel Co. ..... 96-97
Borden Metal Products Co. ..... 36
A. M. Byers Company ..... 13

Case Foundation Co. ..... 32
Clayton Mfg. Co. ..... 133
Clyde Iron Works, Inc. ..... 111
Colorado Fuel & Iron Corp. Wickwire Div. ..... 3rd cov
Commercial Shearing & Stamping Co. ..... 60-61
Concrete Reinforcing Steel Institute ..... 103

Dodge Mfg. Corp. ..... 128
Dravo Corp. ..... 100
Richard Dudgeon, Inc. ..... 133

Economy Forms Corp. ..... 92
Ellicott Machine Corp. ..... 87

Fate Root Heath Co. ..... 8
Freyssinet Co., Inc. ..... 126

Goodyear Tire and Rubber, Inc. ..... 7
Griffin Wellpoint Corp. ..... 99
Gunite Concrete and Construction Co. ..... 99

Hammond Iron Works ..... 90
B. M. Heede, Inc. ..... 141
Hendrix Mfg. Co., Inc. ..... 79
Hose McCann Company, Inc. ..... 114

Ingalls Iron Works ..... 2nd cov
Insulrock Co., Div., Flintkote Co. ..... 9
International Harvester Co. (Constr.) ..... 80-84
Irving Subway Grating Co. ..... 78

Kern Instrument Co. ..... 67
Keuffel & Esser Co. ..... 125
Kinnear Mfg. Co. ..... 127

Larsen Products Corp. ..... 86
LeTourneau Westinghouse Co. 50-51; 53; 55; 57
Lone Star Cement Corp. ..... 20

Manitowoc Engineering Corp. ..... 91
Maginniss Power Tool Co. ..... 119
R. C. Mahon Co. ..... 75
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K. E. McConnaughay, Inc. ..... 112
McKinney Drilling Co. ..... 92
Moretrench Corp. ..... 58
Morris Machine Works ..... 10
Mueller Co. ..... 118
Murphy Diesel Company ..... 1

Norton Company ..... 62

Patent Scaffolding Co. ..... 34-35
Peelle Co. ..... 93
Penn-Dixie Cement Co. ..... 18
Phoenix Bridge Co. ..... 133
Portland Cement Association ..... 38; 88-89

Remington Tools Co. ..... 113
Rockford Clutch Div., Borg Warner Corp. ..... 106
Rockwell Standard Corp., Grating Div. ..... 114
Joseph T. Ryerson & Sons, Inc. ..... 16

Sachse Electric ..... 92
The Sight Feed Generator Co. ..... 117
Sonoco Products Co. ..... 104-105
Spencer Chem. Co. ..... 63
Spencer White & Prentis, Inc. ..... 3
Stacor Equipment Co. ..... 141
Standard Dry Well Products ..... 102
Stanpat Co. ..... 95
Superior Concrete Accessories, Inc. ..... 131
Swiss Fabricating, Inc. ..... 66
Sylgab Steel & Wire Corp. ..... 85
Symons Clamp & Mfg. Co. ..... 2

Texas Co. ..... 4-5
Timber Structures ..... 110
Timken Roller Bearing Co. ..... 4th cov

Underpinning & Foundation Co., Inc. ..... 119
United Steel Fabricators ..... 108
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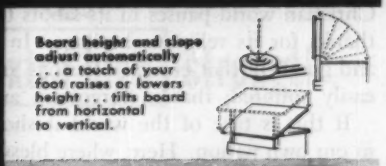

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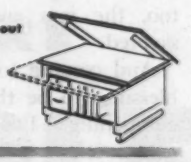

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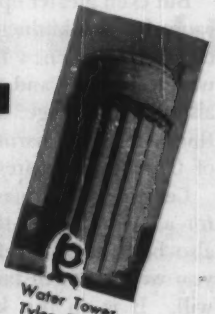

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## Blessings in Abundance

ONCE AGAIN, as for many centuries past, the entire Christian world pauses in its labors to celebrate and give thanks for its religious heritage. In the spirit of peace and goodwill that ensues, blessings, overlooked, are more easily counted; thanks, forgotten, are more easily said.

If this is true of the world it should be doubly true in our own nation. Here, where blessings abound, thankfulness and goodwill can be bountifully dispensed. Here, too, the joys and hopes of Christmas can be fully savored.

And coming to our own calling of construction, the blessings to be thankful for are no less numerous and compelling. For their broad outline reveals that the construction industry, while as always directing its efforts to the service of mankind in creating facilities for health, shelter and communication, also bolstered the U. S. economy in a year of recession.

The construction men who create facilities of such essential kind can take cheerful respite from their labors this Christmas day in the realization that their work throughout the year has made this a somewhat better world in which to live. It is no small privilege to be engaged in tasks that contribute to the human welfare. Thankfulness for the opportunity is a part of Christmas.

But even greater opportunity—and therefore additional cause for thankfulness—always lies ahead. There is the challenge to do new things, to develop new products and new techniques and to improve old ones. And there is also the challenge, annually repeated, to do all these things in closer harmony with the ideals that the spirit of Christmas inspires.

Let this Christmas, therefore, be a day of rejoicing for all who follow the calling of construction. Let it also be a day for reflection on how to begin the new year with renewed faith in the future and with all goodwill. It is on this kind of a note that ENR's editors wish you a very Merry Christmas and a satisfying and Happy New Year.

## Color in Buildings

IN KEEPING with the gay, festive mood of the Christmas season, ENR's cover this week flags the trend toward color in buildings. It signals specifically an article in this issue reporting what color in buildings cost, and concluding that designers think color is worth its price.

Just this month, at a construction conference in Chicago (ENR Dec. 18, p. 21) a speaker joked about the trend to new types of wall materials. He questioned their trade-in value, but argued that the time may come when the exterior of a building will have to change with the styles.

Actually, the only thing facetious about the idea is the trade-in value, since some old buildings have already shed their original skins for a more colorful raiment. There is a certain cheer to be derived from coming upon a strikingly different color in a building. Moreover, color provides a new dimension for imaginative designers to work on.

Color is a matter of taste, and there will be lots of it used in construction in poor taste. Still, the trend to acceptance of colored materials of construction is to be hailed. It's agreed: Color can be worth the price.

## A Boost for Research

AT A TIME when American industry is raising research to ever higher levels of importance, research to advance the art of civil engineering and construction is by no means as active as it should be. Any effort made to encourage and promote research of a civil engineering nature is, therefore, worthy of high praise.

One such effort bore fruit last week when Raymond International, Inc., announced the first winner of its new Alfred A. Raymond Award, set up a year ago "to stimulate interest in foundation engineering." The award is given for a paper on a foundation engineering problem or project judged the best in a competition open to all.

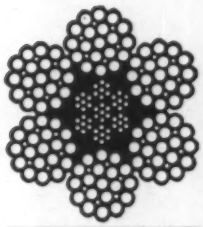
This first competition brought in a total of 29 papers. Some were directed exclusively to research projects; the winning paper presenting a new technique for stabilizing compressible soils.

Others discussed the solution of foundation problems as, for example, the construction of the main river pier on the Mississippi River Bridge at New Orleans and the underpinning of a wind tunnel at Langley Field. These were the subjects of papers receiving honorable mention.

But all the papers added to the sum total of knowledge and, most important, aroused the authors to new interest in their work.

Such a competition in itself is not, of course, research. That it may, however, promote research is easily possible, since it encourages engineers to review and analyze foundation problems in an orderly manner, and thus to detect new areas where knowledge is inadequate. Moreover, by focusing attention on foundation engineering as one of the civil engineer's most difficult and challenging tasks, the competition may cause laymen who engage foundation engineering services to raise their opinions of the importance of such work. Thus, their acquiescence, and perhaps even their support, may be more easily obtained when research is deemed necessary.

These awards by Raymond International, Inc., are a step in the right direction. By lending encouragement to research in the foundation field, they can stimulate interest in civil engineering research generally. More of it must be done if the art of construction is to advance.



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Cutaway view shows the Dodge All-Steel pillow block with Timken bearing mounting. Of special design, the bearing has a tapered bore with self-aligning spherical outer surface —never needs adjustment.

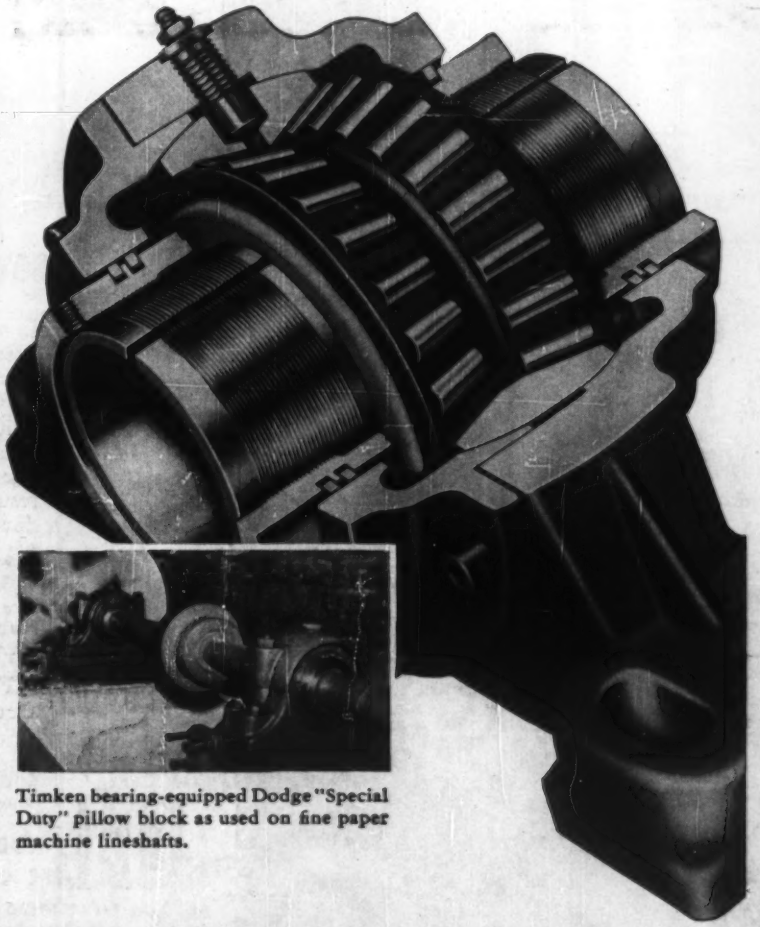
Besides the All-Steel pillow block, other versatile Dodge pillow blocks with Timken tapered roller bearings are: Type "E", Double-Interlock, Type "C" and Special Duty. All are compact in design. Special thrust devices that take up extra space are not needed.

And to get the finest steel for Timken bearings, we make it ourselves—America's only bearing manufacturer that does. So specify bearings trademarked "TIMKEN" for the machines you buy or build. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

*This symbol on a product means its bearings are the best.*

Timken bearing-equipped Dodge All-Steel pillow block used in a vibrating conveyor.

Timken bearing-equipped Dodge Type "E" pillow block used in sand and gravel plant.



Timken bearing-equipped Dodge "Special Duty" pillow block as used on fine paper machine lineshafts.

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TAPERED ROLLER BEARINGS ROLL THE LOAD